



EE&G Restoration, LLC

**DRAFT
LIMITED-SCOPE PHASE I & BASELINE PHASE II
ENVIRONMENTAL SITE ASSESSMENT**

FOR

**PROPOSED HURRICANE KATRINA
CONSTRUCTION AND DEMOLITION LANDFILL
FORMER GENTILLY LANDFILL
10200 ALMONASTER AVENUE
NEW ORLEANS, ORLEANS PARISH, LOUISIANA**

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**November 9, 2005
Project No.: 2005-2081**

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 - INTRODUCTION	1
1.1 PURPOSE	1
1.2 DETAILED SCOPE OF WORK	1
1.3 LIMITATIONS & EXCEPTIONS	2
1.4 USER RELIANCE	3
2.0 - GENERAL ENVIRONMENTAL SETTING	4
2.1 AREA SETTING	4
2.2 REGIONAL GEOLOGY AND HYDROGEOLOGY	4
3.0 - SITE RECONNAISSANCE.....	5
3.1 INTERVIEWS	6
4.0 - HISTORICAL REVIEW.....	8
4.1 HISTORICAL AERIAL PHOTOGRAPHS	8
4.2 HISTORICAL TOPOGRAPHIC MAPS	9
4.3 SANBORN FIRE INSURANCE MAPS	10
4.4 CITY DIRECTORIES.....	10
4.5 CHAIN OF TITLE REVIEW	10
4.6 PRIOR ASSESSMENT USAGE	10
4.7 SUMMARY OF PAST USE OF THE PROPERTY	11
5.0 – ENVIRONMENTAL REGULATORY DATABASE AND RECORD REVIEW	12
5.1 SUMMARY OF DATABASE RESEARCH FOR THE PROPERTY	13
5.2 SUMMARY OF DATABASE RESEARCH FOR SURROUNDING PROPERTIES	16
5.3 ORPHAN SITES.....	17
6.0 – PHASE I ESA FINDINGS & OPINIONS.....	18
7.0 – PHASE I ESA CONCLUSIONS.....	19
8.0 – PHASE II ESA METHODOLOGY.....	20
8.1 VAPOR ASSESSMENT METHODOLOGY	20
8.2 SOIL AND SEDIMENT ASSESSMENT METHODOLOGY	21
8.3 GROUNDWATER ASSESSMENT METHODOLOGY.....	23

TABLE OF CONTENTS – (cont.)

9.0 - PHASE II ESA FINDINGS	26
9.1 VAPOR ASSESSMENT FINDINGS	26
9.2 SOIL LITHOLOGY	26
9.3 SOIL AND SEDIMENT ANALYTICAL RESULTS	26
9.4 GROUNDWATER ANALYTICAL RESULTS	27
10.0 - PHASE II ESA CONCLUSIONS	30
11.0 - DEVIATIONS & ADDITIONAL SERVICES	32
12.0 - STATEMENT OF QUALIFICATIONS	33
12.1 KEY PERSONNEL EXPERIENCE SUMMARY	33
13.0 - REFERENCES	35
13.1 RECORDS OF COMMUNICATION	35
13.2 REGULATORY RECORDS AND PUBLIC DOCUMENTS	35
13.3 PUBLISHED REFERENCES	35
13.4 DEFINITIONS	35
13.5 ADDITIONAL DEFINITIONS – SPECIFIC TO ESA	38
13.6 ACRONYMS	42

FIGURES

- FIGURE 1 – PROPERTY LOCATION MAP
- FIGURE 2 – SITE MAP
- FIGURE 3 – SAMPLE LOCATION MAP

TABLES

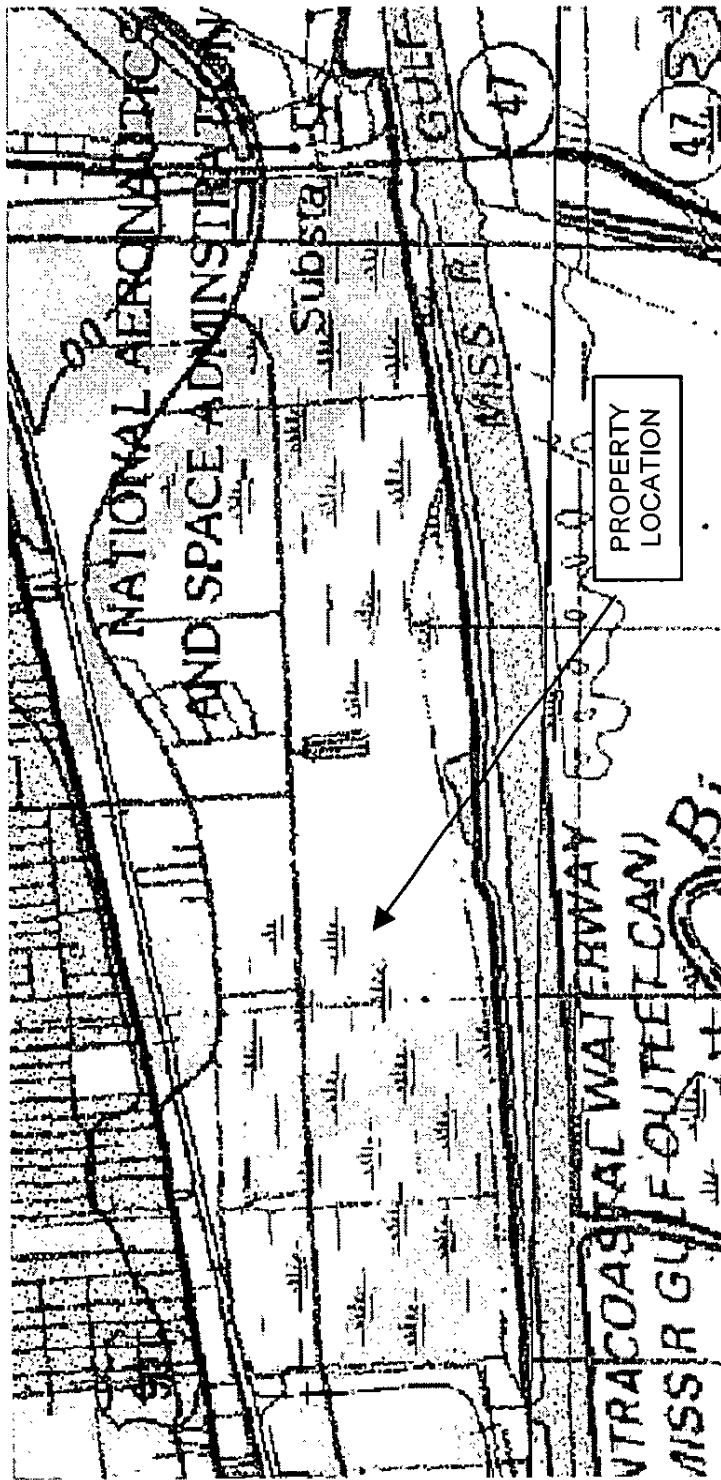
- TABLE 1 – SUMMARY OF SOIL ANALYTICAL DATA
- TABLE 2 – TOXICITY EQUIVALENCY FACTORS – DIOXINS/FURANS IN SOIL
- TABLE 3 – SUMMARY OF GROUNDWATER ANALYTICAL DATA

APPENDICES

- A Site Photographs
- B Aerial Photographs
- C Historical Topographic Maps
- D Sanborn Fire Insurance Maps
- E City Directory Abstract
- F Environmental Database Search Report
- G Excerpts from LDEQ File Review
- H Soil Analytical Laboratory Reports and Chain-of-Custody Forms
- I Groundwater Analytical Laboratory Reports and Chain-of-Custody Forms




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GENTILLY LANDFILL
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NEW ORLEANS, ORLEANS PARISH, LOUISIANA
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USGS QUADRANGLE
1979

FIGURE
1



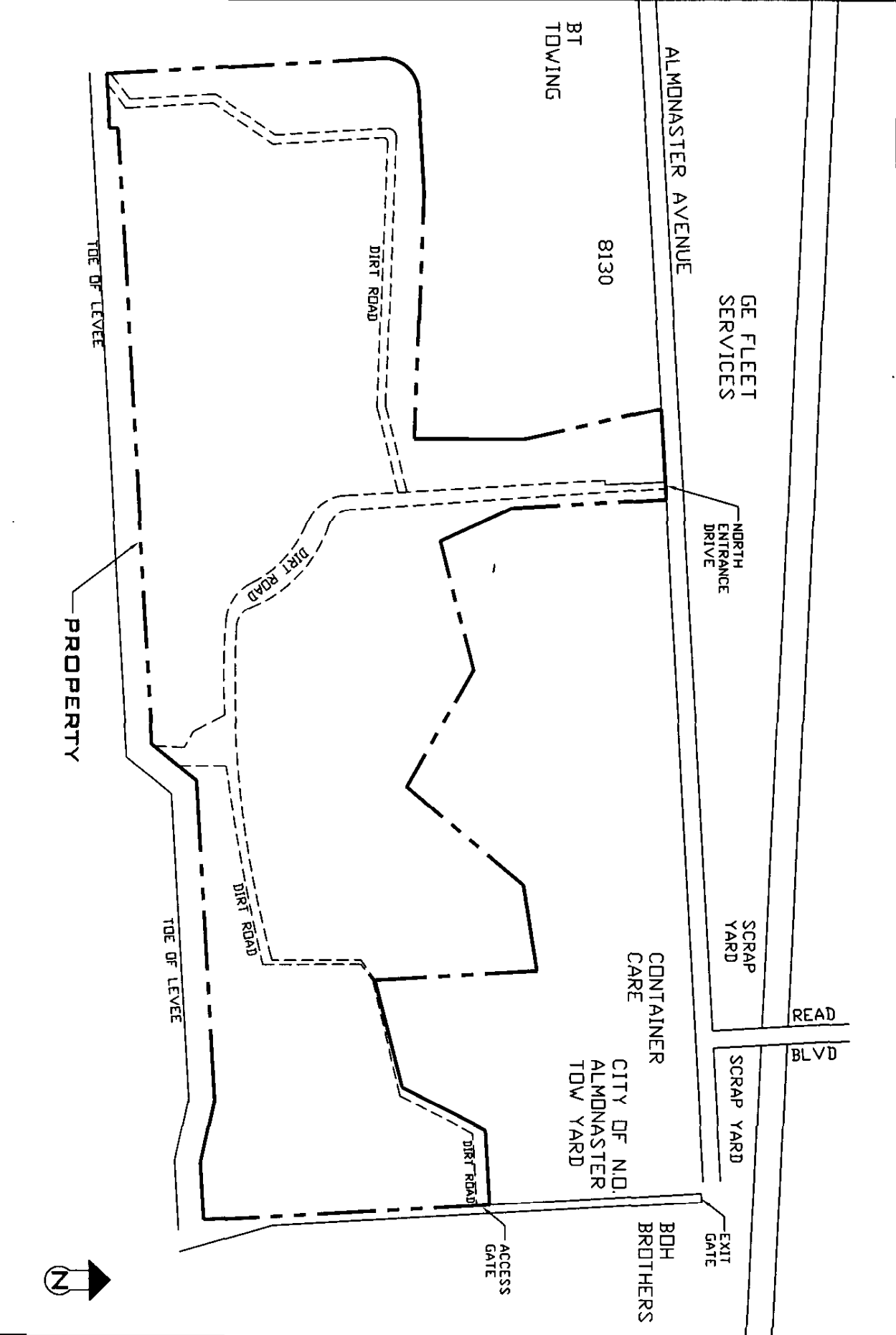
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GENTILLY LANDFILL
 ORLEANS PARISH, LOUISIANA

SITE MAP

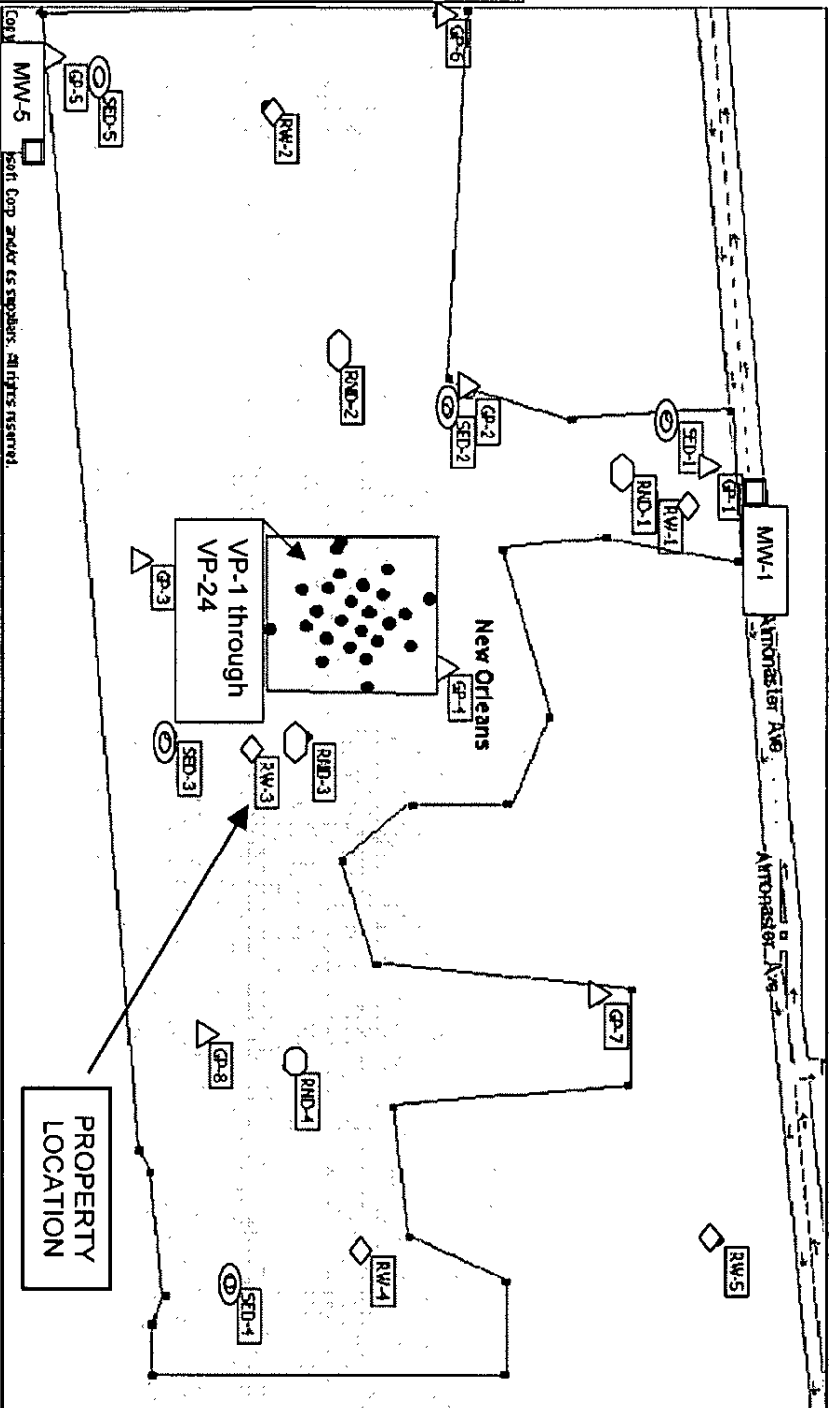
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FIGURE
 2





- ◇ RND = Random surficial soil sample
- ◇ RW = Roadway surficial soil sample
- △ GP = Temporary groundwater sample point
- ◎ SED = Surficial soil sample in drainage feature
- VP = Soil vapor sample point
- MW = Pre-existing monitor well



GENTILLY LANDFILL
 10200 ALMONASTER AVENUE
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SAMPLING LOCATIONS

FIGURE
 3

SECTION 1.0 INTRODUCTION

1.1 PURPOSE

EE&G Restoration, LLC (EE&G) was retained by Phillips and Jordan, Inc. (P&J), under contract with the United States Army Corps of Engineers (USACE), hereafter collectively referred to as "the Client", to perform a Limited-Scope Phase I and Baseline Phase II Environmental Site Assessment (ESA) of the Former Gentilly Landfill Site located at 10200 Almonaster Avenue. At the time of this report, the Former Gentilly Landfill (hereafter referred to as the "*Property*") was being utilized for the disposal of construction and demolition (C&D) materials and the processing of "white goods" (refrigerators, appliances, etc.) for recycling. The aforementioned disposal and recycling activities are related to the restoration and cleanup operations in the aftermath of Hurricane Katrina. The scope of work for the Phase I ESA was approved by the USACE to provide baseline data regarding the conditions of the *Property* prior to the disposal of significant volumes of debris that resulted from Hurricane Katrina. The scope of work associated with the Phase II ESA was developed to obtain analytical data regarding surficial soil, sediment, and groundwater that would provide a baseline of conditions at the *Property*.

1.2 DETAILED SCOPE OF WORK

The Limited-Scope Phase I ESA was prepared in general accordance with the standard practice set forth in American Society of Testing and Materials (ASTM) Designation E 1527-00. The limitations from the ASTM standard were related to inaccessibility of some records and time constraints in the aftermath of Hurricane Katrina.

The objective of this Limited-Scope Phase I ESA was to identify "pre-existing" recognized environmental conditions (RECs) associated with the *Property*. RECs are defined in ASTM Designation E 1527-00 as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property." This Limited-Scope Phase I ESA included the following scope of services:

- EE&G conducted a site reconnaissance to obtain information indicating the likelihood of identifying pre-existing RECs in connection with the *Property*.
- EE&G contracted with Environmental Data Resources, Inc. (EDR) to provide the findings of research for a summary of regulatory environmental databases of the *Property* and surrounding properties.
- Based on the EDR database findings, EE&G requested access to select regulatory files from the Louisiana Department of Environmental Quality (LDEQ) for review.
- EE&G obtained a current USGS 7.5 Minute Topographic Map, and researched current technical documentation on the regional geologic and hydrogeologic environmental setting.
- EE&G obtained historical USGS 7.5 Minute Topographic Maps, and researched past uses of the *Property* and surrounding properties.

- EE&G obtained and reviewed historical aerial photographs from the Louisiana State University (LSU) Cartographic Information Center (CIC), the Louisiana Department of Transportation and Development (LDOTD), and Internet sources.
- Due to a limited local resources (as a result of Hurricane Katrina damage), EE&G contracted with EDR to provide the findings of research for other historical sources, including a city directory abstract and available fire insurance maps.
- EE&G contacted several title companies in Baton Rouge and New Orleans in an attempt to obtain a 50-year Chain of Title.
- The Baseline Phase II ESA was conducted to assess for the presence of potential constituents of concern, and to provide an overview of baseline subsurface conditions including soil and groundwater quality, and the potential presence of elevated landfill gas concentrations, prior to the transportation of significant quantities of C&D materials generated from the recovery efforts. A discussion of the methodology and findings of the Phase II ESA are within the body of this document.
- EE&G prepared this final report, which summarized the methodology and findings of the Limited-Scope Phase I ESA and Baseline Phase II ESA. Documentation of pertinent resources, references and key exhibits were included to support the report findings, when appropriate.

1.3 LIMITATIONS AND EXCEPTIONS

This ESA was performed by competent, qualified technical professionals in accordance with sound professional practices and the standard due care exercised within the profession. The opinions and recommendations presented herein apply only to conditions existing at the time of this assessment. Any changes in site conditions, environmental standards, practices, or regulations subsequent hereto are not covered. Furthermore, although every reasonable effort has been made to use information sources that are authoritative, EE&G does not warrant their accuracy or completeness, nor the use of segregated portions of this report.

This Phase I ESA did not include wetlands assessment/delineation, asbestos surveys, radon gas surveys, lead based paint surveys, mold/mildew surveys, or building condition assessments of structures. These assessments are not within the scope of work of ASTM Designation E 1527-00 and were not requested by the client.

This Limited-Scope Phase I ESA was prepared in general accordance with ASTM Designation E 1527-00; however, due to time constraints and a lack of reasonably ascertainable historic data due to the effects of Hurricane Katrina, this Phase I ESA does not conform with all requirements of ASTM Designation E 127-00, and was intended only a screening tool to assess for "pre-existing" environmental conditions. Therefore, other RECs may exist at the site or at surrounding properties that were not reasonably ascertainable within this limited scope.

1.4 USER RELIANCE

This report was prepared solely for the use of P&J and the USACE, and is not intended for use by third party beneficiaries. Unauthorized third parties rely upon the material presented herein at their own risk. This document was meant to be reviewed and interpreted in whole. Review and utilization of portions of this report without the context and information contained in the entire report is not advisable, and such users should do so at their own risk.

SECTION 2.0 GENERAL ENVIRONMENTAL SETTING

2.1 AREA SETTING

The *Property* was located in the City of New Orleans, Orleans Parish, Louisiana, and consisted of approximately 230 acres of land that was associated with a former landfill facility. The facility was located approximately ½ mile west of Read Boulevard along the south side of Almonaster Avenue. The facility was adjoined by another landfill (KC Landfill) to the west, a construction company (BOH Brothers Construction Co., Inc.) to the east, an unnamed former landfill to the north (south of Almonaster Avenue), a automobile junkyard to the north across Almonaster Avenue, and the Intracoastal Waterway to the south. The entrance to the landfill was located at the west-central side of the *Property* and the road through the landfill formed a semicircle that passed through the landfill, and returned to Almonaster Avenue at the east end of the *Property*. The *Property* was situated in an industrial area, with interspersed, undeveloped swamp and marsh land. Refer to Figure 1 for the portion of the USGS topographic map depicting the *Property*.

2.2 REGIONAL GEOLOGY AND HYDROGEOLOGY

The surface deposits in the Orleans Parish area consist of Recent (Holocene) alluvial backswamp and deltaic sediments composed of organic-rich clays, silty clays, and silts with discontinuous sand lenses to depths of 100 feet or more, deposited in the Mississippi River floodplain and delta (Rollo, J.R., Ground-Water Resources of the Greater New Orleans Area, Louisiana Department of Conservation, Water Resource Bulletin No. 9, 1966).

Orleans Parish is located in the Gulf Coastal Plain physiographic province, which is characterized by relatively flat, featureless plains bordering the Gulf of Mexico. The regional depositional history overall has been one of gulfward migration of shorelines and continental shelf edge, with sedimentation occurring in a variety of depositional settings including alluvial, deltaic, bay lagoonal, barrier island, and open marine.

There are three significant sand zones that may produce fresh water in the site vicinity. A shallow zone of thin and discontinuous water-bearing strata occurs within the modern Mississippi River alluvium and backswamp deposits. These deposits have little potential for groundwater use because of variable quality and low transmissivity. Thicker and more widespread aquifers are developed in the deeper Pleistocene sediments described as the 400-Foot Sand (the Norco Aquifer in more recent publications), and the 700-Foot Sand (the Gonzales-New Orleans Aquifer), in descending order.

The Norco Aquifer occurs at approximately 300 feet deep in the site vicinity and is generally 150 feet thick. The Gonzales-New Orleans Aquifer underlies the area at approximately 550 feet and is the thickest aquifer with an average thickness of 200 feet in the site vicinity. The Gonzales-New Orleans Aquifer is separated from the Norco Aquifer by a clay horizon. Both aquifers are utilized to provide water for industrial purposes in the New Orleans vicinity and are not for drinking purposes with the Gonzales-New Orleans Aquifer the predominant source of groundwater. The potentiometric conditions of all the aquifers are influenced by groundwater withdrawals in the area, with groundwater flow towards withdrawal centers. All aquifers have variable water quality, ranging from fresh to saline in the general area. All of the aquifers deeper than the Gonzales-New Orleans Aquifer contain saline groundwater in the site vicinity.

SECTION 3.0 SITE RECONNAISSANCE

A site reconnaissance of the *Property* was conducted on October 10, 2005, by Mr. Craig Clevenger, P.G., of EE&G, noting areas of potential environmental concern. The *Property* was a former landfill that had been closed after years of use as a Class III, unlined landfill for the City of New Orleans. At the time of the site reconnaissance, the former landfill had been designated for the placement of hurricane-generated construction and demolition (C&D) debris by the City of New Orleans and was beginning to receive debris for disposal. Improvements to the *Property* included the addition of washed gravel roadways and truck inspection towers.

The C&D debris disposal activities were initiated immediately prior to EE&G's initial site reconnaissance. "White Goods" staging, cleaning, and crushing activities were initiated after EE&G's site reconnaissance. Numerous pieces of heavy equipment were observed operating at the *Property*, including dump truck and tractor-trailers, bull dozers, track-hoes, water trucks (for dust control), and private vehicles.

Refer to **Figure 1** for a portion of the USGS map depicting the location of the *Property*. Refer to **Figure 2** for a site map of the *Property* and adjoining properties. Refer to **Appendix A** for photographs taken during the site visit.

Summary of Site Reconnaissance Findings

Inspection Category	Evidence Observed
Hazardous Substances and Wastes	No
Petroleum Products	No
Underground/Aboveground Storage Tanks	No
Potential PCB-Containing Equipment	No
Solid Waste	Yes
Storm Water Drainage	Yes
Waste Water	No
Wells	Yes
Pits, Ponds & Lagoons	No
Floor Drains	No
Sanitary Sewer/Septic System	No
Heating/Cooling System	No
Stains or Corrosion	No
Hydraulic Equipment	Yes
Stained Soil or Pavement	No
Stressed Vegetation	No
Pools of Liquid	No
Grease Traps	No
Oil/Water Separators	No
Drums or Unidentified Containers	No

Solid Waste: At the time of the site reconnaissance, an area of partially covered solid waste was observed immediately to the north of the Property boundary (between the northern Property boundary and Almonaster Avenue). No significant areas of solid waste were observed exposed within the actual boundaries of the Property, prior to the placement of hurricane generated C&D debris.

Storm Water Drainage: Storm water drainage at the Property consisted of open drainage ditches, detention areas, overland sheet flow, and direct infiltration. The open drainage ditches consisted of a north-south oriented drainage ditch adjacent to the eastern edge of the main entrance road which was connected to an open drainage ditch adjacent to the southern boundary of the Property. The open drainage ditches appeared to drain, via gravity to the eastern and western adjoining properties along the southern boundary of the Property.

The detention pond at the Property was located adjacent to the western adjoining property, west of the main entrance to the Property. Storm water entering the detention areas directly infiltrated into the subsurface.

Wells: Six groundwater monitoring wells were reported to exist at the Property. USACE representatives Mr. Rick Hockett and Mr. Albert Reyes conducted an inspection of the Property and located two of the reported six monitoring wells. Monitoring well MW-1 was located near the northern boundary of the Property, adjacent to the east side of the main entrance to the Property. Monitoring well MW-5 was located near the southwest corner of the Property. The other monitoring wells could not be located.

No other wells or evidence of wells (i.e. standpipes, manholes, etc) were observed at the Property.

Hydraulic Equipment: Site activities initiated to handle and segregate debris transported to the Property utilized heavy equipment and dump trucks that were equipped with hydraulic lines.

3.1 INTERVIEWS

The USACE was provided a proposed work plan prepared by EE&G/P&J for their approval, prior to the initiation of the Limited Phase II ESA. Prior to the start of the Limited Phase II ESA, EE&G personnel met with and interviewed Mr. Rick Hockett and Albert Reyes, representatives of the USACE to discuss the proposed sampling methodologies and locations. Mr. Hockett and Reyes were generally on-site during each assessment and sampling tasks, and provided input as to the selection of samplings locations, based on the daily changes occurring at the Property.

EE&G personnel and USACE representatives Mr. Hockett and Reyes met with Phillips and Jordan's consultant Mr. Rick Keenan of Golder & Associates concerning his knowledge of the former landfill. Mr. Keenan stated that the former landfill consisted of dewatered cells that were approximately 28-feet below land surface.

In a telephone conversation on November 9, 2005, Mr. Steve Stumpf, of E.C. Durr Heavy Equipment, Inc. (Durr), informed EE&G that any hurricane-related debris placed, or to be placed, on the *Property* would be on top of the minimum 18-inch clay cap that was emplaced in accordance with the landfill's LDEQ-approved Closure Plan. Durr performed the Phase III landfill closure activities, which were initiated in 2000 under the QA/QC oversight of Earth Tech. At the time of this report, AMID/Metro Partnership, LLC, had been retained by the City of New Orleans to manage the daily operations of the landfill for the hurricane-related C&D debris.

SECTION 4.0 HISTORICAL REVIEW

The historical use of the *Property* and adjoining properties was reviewed using available city directories, historical USGS topographic maps, Sanborn Fire Insurance Maps, and aerial photographs. To follow are the findings of the historical review.

4.1 HISTORICAL AERIAL PHOTOGRAPHS

Government agencies or private entities often take aerial photographs annually or bi-annually. Review of these historic aerial photographs may provide information regarding land development and land use patterns at specified dates. Historical aerial photographs of the *Property* and surrounding area were obtained from the Louisiana State University (LSU) Cartographic Information Center (CIC), the Louisiana Department of Transportation and Development (LDOTD), and through Internet sources (GoogleEarth®). EE&G reviewed aerial photographs of the *Property* for the years 1933, 1952, 1959, 1976, 1983, 1998, and 2005. The 2005 aerial photograph reflected the *Property* and surrounding properties approximately as they appeared at the time of the site visit. Copies of these aerial photographs are provided in **Appendix B**. The findings are summarized below:

SUMMARY OF AERIAL PHOTOGRAPHS

YEAR	PROPERTY	NORTH PROPERTIES	SOUTH	EAST PROPERTIES	WEST PROPERTIES
1933	Undeveloped swampland & wooded area	Undeveloped swampland & wooded area	No coverage - aerial photo coverage cuts off to south	Undeveloped swampland & wooded area	Undeveloped swampland & wooded area
1952	NC	NC	Intracoastal Canal & levee	NC	NC
1959	Structures/access road present at north central area of property	Structures/access road present to Gentilly Rd to north	Intracoastal Canal & levee	NC	NC
1976	Access road and elevated areas of solid waste are apparent	Almonaster Ave. present - property developed from Gentilly Rd to Almonaster Ave - apparent multiple storage containers onsite	Intracoastal Canal & levee	No coverage - aerial photo coverage cuts off to east	Elevated apparent landfill area
1983*	NC*	NC*	Intracoastal Canal & levee	NC*	NC*
1998	Clearing of portions of property corresponding with site boundaries	NC	Intracoastal Canal & levee	BOH Bros. property developed	NC
2005	NC	NC	Intracoastal Canal & levee	NC	NC

NC = Signifies no significant change from the prior aerial photograph that was reviewed.
1983* aerial photo quality is poor

4.2 HISTORICAL TOPOGRAPHIC MAPS

Historical topographic maps of the *Property* and surrounding area were obtained from EDR. EE&G reviewed historical topographic maps of the *Property* for the years 1951, 1967, 1972, 1979, 1994, and 1998. Copies of these topographic maps are provided in **Appendix C**. The findings are summarized below:

SUMMARY OF HISTORICAL TOPOGRAPHIC MAPS

YEAR	PROPERTY	NORTH PROPERTIES	SOUTH	EAST PROPERTIES	WEST PROPERTIES
1951	Undeveloped swampland & wooded area	Undeveloped swampland & wooded area	Intracoastal Canal – no levee apparent	Undeveloped swampland & wooded area	Undeveloped swampland & wooded area
1967	<i>Property</i> shown as undeveloped – Map shows proposed location of E-W Almonaster Ave.	Shown as undeveloped – Map shows unpaved N-S road & proposed location of E-W Almonaster Ave.	Intracoastal Canal & levee	Shown as undeveloped – Map shows proposed location of E-W Almonaster Ave.	Shown as undeveloped – Map shows proposed location of E-W Almonaster Ave.
1972	<i>Property</i> shown as undeveloped – Map shows location of E-W Almonaster Ave.	Map shows paved N-S road with structure & location of E-W Almonaster Ave.	NC	NC	NC
1979	Landfill areas shown	Additional structure shown	NC	NC	Shown as partially developed – cleared with one structure
1994	Access road to landfill shown	NC	NC	Landfill areas shown	Additional structures at site – two parallel N-S access roads
1998	Additional access roads	NC	NC	Additional landfill acreage & access roads	Further development with additional roads

NC = Signifies no significant change from the prior topographic map that was reviewed.

4.3 SANBORN FIRE INSURANCE MAPS

Sanborn Fire Insurance Maps are an additional source of historical use information available for most developed areas. The maps, used for insurance purposes, indicate structures by name, type of construction and address. EDR provided two Sanborn Fire Insurance Maps that included the northern parcel of the *Property* and surrounding areas. Sanborn Maps were available for 1979 and 1994, and depicted the *Property* as undeveloped land, bounded by a residential area. Copies of the Sanborn maps are provided in **Appendix D**.

Review of the 1979 Sanborn map indicated that the *Property* and surrounding areas were largely undeveloped, and the map did not identify the presence of the landfill on the *Property*. The eastern and western properties were not observed to be developed. The northern adjoining property was shown to be utilized as a shipping container and chassis terminal along with a trucking company's storage yard.

The 1994 Sanborn map indicated that the landfill was present at the *Property*. No changes were observed to the east or west; however, the northern property was not shown to store shipping containers but remained as a truck yard.

4.4 CITY DIRECTORIES

City Directories are reference books published annually for most major metropolitan areas. These publications contain listings of businesses and landowners by address and name. The City Directories are useful in determining the historical use and/or occupant(s) of a given property. Due to a lack of available local resources (as a result of Hurricane Katrina damage), EE&G contracted with EDR to provide the findings of research for historical sources, including a city directory abstract. However, the city directory abstract provided limited information regarding the recent past of the area and did not include information regarding occupants of the area prior to 1997. No addresses were listed from 1925 through 2003 along Almonaster Ave in the vicinity of the *Property*. As of 1997, facilities along Read Blvd, included various trucking companies at the 4049 address. In the 2003 directory, the Read Blvd. address included was operated by what appeared to be storage and container companies. A copy of the City Directory Abstract provided by EDR is provided in **Appendix E**.

4.5 CHAIN OF TITLE REVIEW

EE&G contacted local title companies to obtain an abstract of the chain of title for the *Property*. Each of the firms indicated that the completing the abstract will be very difficult because of the condition of the records. The records were stored in the basement of the Courthouse and the title records were reportedly submerged during the flood. The records were reported to be shipped to Boston for freeze drying and the more recent records, post-1970, have been recently returned to the City. The firms indicated that review of the older records, pre-1970, will not likely be completed before the end of the year.

4.6 PRIOR ASSESSMENT USAGE

EE&G was not provided with copies of previous environmental assessment reports; however, several post-closure monitoring reports were obtained from the LDEQ's files. The summary developed from the review of these reports is included in Section 5.0.

4.7 SUMMARY OF PAST USE OF THE PROPERTY

Prior to the mid-1960s, the site was undeveloped land that appeared to be wetlands, based on review of the historical topographic maps and aerial photographs. The *Property* was used as a municipal landfill by the City of New Orleans from the mid-1960s through 1986, at which time the landfill stopped receiving waste. Since 1986, records obtained from the LDEQ indicate that the *Property* has reportedly not been utilized for any other purposes. The final phase of the LDEQ-approved Closure Plan for the former landfill was completed in 2003. Landfill closure consisted of the placement and compaction of a minimum 18-inch clay cover, with subsequent seeding and drainage improvements.

SECTION 5.0 ENVIRONMENTAL REGULATORY DATABASE AND RECORD REVIEW

EE&G contracted Environmental Data Resources (EDR) to conduct a search of database systems maintained by Environmental Protection Agency (EPA) and the Louisiana Department of Environmental Quality (LDEQ). These federal, state and local regulatory agency database systems maintain information concerning the storage, use and/or discharge of hazardous substances and/or petroleum products, compliance issues, environmental violations, and enforcement actions of reported sites. The following table summarizes the databases researched, their search criteria (based on the approximate minimum search distance recommended by ASTM Designation E 1527-00), and date information released by the Government. The databases definitions, and detailed research findings, are presented in the *October 11, 2005 EDR Radius Map Report*, which is provided in **Appendix F**.

EE&G conducted further research regarding the environmental history of the Property and surrounding facilities and properties that were identified in the EDR report. The files were reviewed at the LDEQ's headquarters in Baton Rouge, Louisiana. Excerpts from the LDEQ file review are presented in **Appendix G**.

The following table summarizes the databases researched and their search distance criteria (based on the approximate minimum search distance recommended by ASTM Designation E 1527-00). Further information regarding these databases, including the date the information was released by the Government and date the Government version was verified, can be found in the *EDR Radius Map Report*.

Federal Database (EPA)	Search Radius from Property
National Priorities List (NPL)	1.0-Mile Radius
Corrective Action Report (CORRACTS)	1.0-Mile Radius
Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS)	0.5-Mile Radius
CERCLIS-No Further Remedial Action Planned (NFRAP)	0.25-Mile Radius
Resources Conservation and Recovery Information System (RCRIS) for Large Quantity Generators (LQGs) and Small Quantity Generators (SQGs)	0.25-Mile Radius
Biennial Reporting System (BRS) for LQGs and Treatment, Storage, and Disposal (TSD) facilities	0.5-Mile Radius
Emergency Response Notification System (ERNS)	Limited to the Property
PCB Activity Database System (PADS)	Limited to the Property
Facility Index System/Facility Identification Initiative Program Summary Report (FINDS)	Limited to the Property
Hazardous Materials Information Reporting System (HMIRS)	Limited to the Property
Toxic Chemical Release System (TRIS)	Limited to the Property
Toxic Substance Control Act (TSCA)	Limited to the Property

State Database (LDEQ)	Search Radius from <i>Property</i>
Potential and Confirmed State Hazardous Waste Sites (SHWS)	1.0-Mile Radius
Solid Waste Facilities/Landfill List (SWF/LF)	0.5-Mile Radius
Leaking Underground Storage Tank (LUST)	0.5-Mile Radius
Louisiana UST Database	0.5-Mile Radius
Dry Cleaning Facilities (DRYCLN)	0.5-Mile Radius
Recycling Directory (SWRCY)	0.5-Mile Radius
Voluntary Remediation Program Sites (VCP)	0.5-Mile Radius

5.1 SUMMARY OF DATABASE AND REGULATORY FILE RESEARCH FOR THE *PROPERTY*

Based on a review of the *EDR Radius Map Report*, the *Property* was identified on the environmental databases research as being associated with the City of New Orleans Sanitation Department, 10200 Almonaster Avenue.

EE&G conducted a review of the LDEQ's regulatory files (Agency Interest No. 1036) regarding the *Property*. The LDEQ's files on the *Property* covered the time period from 1980 through 2005, and included copies of permits, site inspections, closure and post-closure plans, monitoring reports, memorandums, and various correspondences. Pertinent items found in EE&G's review of the LDEQ files are excerpted in **Appendix G**, and are summarized below:

Permits, Inspections, and Compliance Orders

- July 10, 1980 – EPA issued Potential Hazardous Waste Site Identification and Preliminary Assessment Form.
- October 27, 1980 – EPA issued Open Dump Inventory Report.
- June 25, 1981 – Environmental Control Commission (ECC – precursor to LDEQ) issued Interim Permit IP-0071, requiring submission of a permit application within 180 days.
- October 28, 1982 – ECC issued letter rescinding IP-0071 and issuing Compliance Order C-0541, requiring landfill closure by June 25, 1985.
- March 30, 1983 – City of New Orleans submitted Closure Plan for the site.
- June 25, 1985 – ECC issued Compliance Order Extension C-0451-E1 until September 27, 1985 to close the site in accordance with the March 30, 1983 Closure Plan.
- January 10, 1986 – ECC issued an Enforcement Order to the Orleans Parish Commission Council requiring:

- Site may continue operating until March 31, 1986.
- Submit written justification by January 20, 1986 detailing reasons why the site cannot close.
- Submit a plan by March 1, 1986 establishing deadlines for meeting requirements
- May 28, 1987 – Burk and Associates (consultant to City of New Orleans) submitted a Closure Plan Revision.
- 1980 through 1990 – Numerous inspections and compliance orders regarding deficiencies and violations at the *Property*, including:
 - Improper safety devices
 - Improper handling of construction debris and/or tree limbs
 - Improper drainage
 - Improper handling of runoff and/or leachate
 - Daily waste not spread and/or compacted properly
 - Inadequate to nonexistent cover
 - Inadequate gas control
 - Evidence of insects, rodents, and vectors
 - Fires at dumpsite
 - Poor maintenance of access road
 - Garbage mixed with appliances
 - Waste dumped in standing water
- October 27, 2004 - The LDEQ, Office of Environmental Services, issued a public notification, stating that "a solid waste permit application for the City of New Orleans, 1340 Poydras Street, Suite 750, New Orleans, LA 70112, for the Gentilly Landfill 'Type III' is technically complete and acceptable for public review".

Closure and Post-Closure Plans and Activities

The original Closure Plan was submitted in March 1983, and the site was closed to incoming waste in 1986. Subsequent revisions to the Closure Plan were submitted in 1987, 1992, and 1996. A consent agreement was negotiated with the City of New Orleans in 1993, and all closure activities were to be completed by 1996. Phase II closure construction was completed in March 1997, which effectively closed approximately 43 acres of the landfill.

In the Closure Plan Amendment, dated February 2, 1998, the City of New Orleans requested a variance from the approved Closure Plan for Phase III closure activities, which included the remaining approximately 143 acres to be closed. The Phase III closure activities were initiated in March 2000, by the contractor E.C. Durr Heavy Equipment, Inc. (Durr), with QA/QC oversight by Earth Tech. A minimum 18 inches of native clay was placed and compacted over the surface with subsequent seeding for vegetative cover. The Closure Plan Certification Document dated May 15, 2003 was submitted to the LDEQ, verifying that Phase III construction was adequately completed.

Post-Closure Monitoring Results

Surface and groundwater monitoring was initiated at the *Property* on May 4, 1989. The monitoring network used to obtain representative groundwater and surface water data consisted of six monitoring wells, two upgradient and four downgradient, and four surface water sampling locations.

Historical groundwater levels ranged from 1 to 6 feet below ground surface. In general, groundwater flow direction was to the north and northwest across the site. Although aquifer testing at the site had not been indicated, observations from well purging prior to sampling indicated that the surficial aquifer was slow to recharge.

The parameters analyzed during the post-closure monitoring consisted of:

- Inorganics: including alkalinity, chloride, cyanide, nitrate/nitrite, and sulfate.
- Specific conductance.
- Total Metals: including arsenic, cadmium, copper, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, thallium, and zinc.

The historical groundwater analytical data reviewed for MW-1 through MW-5 covered the time period from May, 1999 through March, 2004. The following is a summary of the metals analytes that exceeded the LDEQ's Risk Evaluation-Corrective Action Program (RECAP) groundwater screening standards (GW-SS).

- Arsenic concentrations in the monitoring wells ranged from non-detectable (ND) to a maximum concentration of 0.099 milligrams per liter (mg/L). The GW-SS for arsenic is 0.01 mg/L.
- Cadmium concentrations ranged from ND to a maximum concentration of 0.007 mg/L. The GW-SS for cadmium is 0.005 mg/L.
- Lead concentrations ranged from ND to a maximum concentration of 0.10 mg/L. The GW-SS for lead is 0.015 mg/L.
- Selenium concentrations ranged from ND to a maximum concentration of 0.17 mg/L. The GW-SS for selenium is 0.05 mg/L.
- Thallium concentrations ranged from ND to a maximum concentration of 0.17 mg/L. The GW-SS for thallium is 0.002 mg/L.

No discernible increasing or decreasing trends were observed in the groundwater concentrations during the monitoring period. It should be noted that the laboratory method reporting limits for several of the metal constituents exceeded the applicable RECAP GW-SS.

5.2 SUMMARY OF DATABASE RESEARCH FOR SURROUNDING PROPERTIES

Due to the flat topography, relatively flat hydraulic gradient, and relatively high natural biodegradation/attenuation capabilities in New Orleans, the potential for contaminants to migrate horizontally has been minimized. However, sites potentially contaminated with volatile organic halocarbons (VOHs), such as dry cleaners, are of significant concern due to the mobility of these constituents in the groundwater. Thus, sites greater than one-sixteenth of a mile (330 feet) from the *Property* were not considered a significant environmental threat, unless chlorinated solvent contamination was suspected. Based on a review of the *EDR Radius Map Report*, surrounding facilities were identified on the environmental databases within the designated research distances. These facilities included:

Brasso International (formerly Gulf States Tanks) -

4049 Read Blvd.

Approximately 1500 feet Northeast of the *Property*

SHWS, SWF/LF Databases

- The only items on file at the LDEQ were a complaint and a followup inspection from 1988. The facility reportedly cleaned intermodal containers, which carried a variety of chemicals. No documentation of impacted groundwater or soils was included in the files.

This facility does not appear to represent a significant environmental concern to the *Property*.

BOH Brothers

10300 Almonaster Blvd.

Eastern Adjoining the *Property*

RCRA-SQG, FINDS, UST Databases

- Reportedly, the facility consisted of a carpenter's yard, pipe storage area, equipment & piling storage yards, asphalt and concrete plants.
- In February 1982, the facility submitted an application for a National Pollutant Discharge Elimination System (NPDES) permit.
- In January 1996, the facility submitted registration forms for three underground storage tanks (USTs), including one 1,000-gallon gasoline tank and two 500-gallon diesel tanks. The UST registration forms were subsequently updated annually through 2005.
- No additional information regarding soil or groundwater quality of the site was observed in the file reviewed.

This facility does not appear to represent a significant environmental concern to the *Property*.

Other facilities

- No other facilities were listed in the *EDR Radius Map Report*; however, site reconnaissance indicated surrounding landfills and an automotive junkyard.

5.3 ORPHAN SITES

Orphan sites are facilities that have been identified on the *EDR Radius Map Report*; but not mapped. Twenty seven orphan facilities were listed in the EDR report and EE&G attempted to identify the sites and map their locations. Based on the distances of the sites from the *Property*, these facilities do not appear to be of potential concern.

SECTION 6.0 PHASE I ESA FINDINGS & OPINIONS

Based on the Phase I ESA research, the following conditions were identified in association with the *Property*:

- The *Property* was located to the south of Almonaster Avenue and to the north of the Intracoastal Waterway.
- The *Property* was adjoined by BOH Brothers Construction company to the east, an unnamed landfill to the west, an unnamed former landfill to the north (south of Almonaster Avenue), and a automobile junkyard to the north across Almonaster Avenue.
- The adjacent properties appear to have posed no significant risk of environmental impact to the *Property*.
- The *Property* operated as an unlined solid waste landfill from the mid-1960s through 1986. Analytical data obtained from the records maintained by the LDEQ documented the presence of regulated constituents in groundwater samples collected. During groundwater monitoring from 1989 to 2004, concentrations of several metal compounds, including arsenic, cadmium, chromium, lead, selenium, and thallium, were in excess of applicable RECAP GW-SS.
- Areas of partially covered debris remained visible immediately beyond the north *Property* boundary (centrally between the north *Property* boundary and Almonaster Avenue).
- Closure activities for the landfill indicated that the construction aspect of the closure was completed in accordance with LDEQ requirements. The Closure Plan approved for the landfill included monitoring parameters that assessed for the presence of inorganic parameters including metals, but did not assess for the presence of volatile or semivolatile constituents. The results of the monitoring identified monitoring parameters slightly in excess of the RECAP screening standards for total metals.
- The *Property* was being reopened as a construction and demolition (C&D) debris landfill, which subsequently included a white goods staging, cleaning, and compaction area for the Hurricane Katrina debris generated from the cleanup efforts.
- According to the Mr. Steve Stumpf of Durr Heavy Equipment, Inc. (Durr), C&D debris and white goods resulting from Hurricane Katrina cleanup efforts are being placed on a minimum 18-inch thick clay cap, which covers the former landfill areas of the *Property*, in accordance with the LDEQ-approved Closure Plan.

SECTION 7.0 PHASE I ESA CONCLUSIONS

EE&G has performed a Phase I Environmental Site Assessment, in conformance with the scope and limitations of ASTM Practice Designation E 1527-00, of the Gentilly Debris Segregation Site (aka the Former Gentilly Landfill) (the *Property*), located 10200 Almonaster Ave. in New Orleans, Orleans Parish, Louisiana. This Phase I ESA has revealed no Recognized Environmental Conditions (RECs) in connection with the *Property*, except for the following:

- The *Property* operated as an unlined, solid waste municipal landfill from the mid-1960s through 1986. Material of an unknown nature may have been disposed of in the landfill that had the potential to impact the *Property*. Closure monitoring was conducted for inorganic parameters from 1989 to 2004, in accordance with the approved closure plan. However, the data available for review did not indicate if other regulated organic parameters were impacting the groundwater or soil of the *Property*. Analytical data obtained from the records maintained by the LDEQ indicated groundwater concentrations of arsenic, cadmium, lead, selenium, and thallium in excess of RECAP screening standards.

SECTION 8.0 BASELINE PHASE II ESA METHODOLOGY

EE&G performed a Baseline Phase II ESA of the *Property* to assess soil, sediment, soil vapor, and groundwater quality for the presence of contaminants of concern (COCs) that may be present at the *Property* as a result of the historical operation as a landfill. The scope of work included the collection of samples from the surficial and shallow horizons for each of these matrices, as these intervals are the potential receptors of impacts from the disposal of hurricane-related debris. The data generated from these assessment activities will assist in establishing conditions for the time prior to the delivery of significant volumes of debris. The scope of services was approved by the USACE and all the sampling locations were selected by and/or approved by the USACE prior to the initiation of vapor, soil, and groundwater sample collection. Refer to **Figure 3** for a site map indicating the locations of the sampling locations.

8.1 VAPOR ASSESSMENT METHODOLOGY

As part of the soil gas assessment, EE&G installed 24 vapor point wells to facilitate the collection of soil vapors. Soil vapors may be present from the degradation of putrescible materials that were buried at the landfill. The sampling points were installed across the portion of the landfill that was proposed to be utilized as a debris incineration site. Sixteen vapor well points were placed in a grid pattern that covered the proposed incineration site, and eight points were placed approximately 20 feet outside the perimeter of the proposed incineration site. The vapor assessment screened for the presence of landfill gases that included the following:

- Methane
- Upper and lower explosion limit (LEL)
- Carbon monoxide (CO)
- Oxygen (O₂)
- Hydrogen sulfide (H₂S)
- Organic vapors (undifferentiated)

The vapor points designated vapor point VP-1 through VP-24 were installed on October 6, 2005 to a total depth of approximately 4 to 5 feet below land surface (BLS) utilizing the direct-push drill rig. Each vapor point was advanced using a hollow 2-inch diameter core barrel that allowed for the introduction of polyvinyl chloride (PVC) machine slotted screen (0.010 inch opening) and solid PVC riser. The vapor points consisted of 2.5-feet of 1-inch slotted PVC screen (installed below grade), and approximately 7.5 feet of solid PVC riser, which extended above grade. Following installation, the annulus of each vapor point was filled with a sand pack to approximately 0.5-foot above the slotted screen portion of the vapor point well. Hydrated bentonite pellets were placed above the sand pack to surface grade to seal the annulus.

The vapor well points were sealed at the top of the solid PVC riser with a 1-inch cap, and a threaded brass sampling port with a rubber cap was installed through the PVC cap. The brass sampling port was utilized to purge the vapor points prior to sampling, and for the connection of the vapor point to sampling equipment. Analyses were performed with a Foxboro Model 128 Organic Vapor Analyzer equipped with a Flame Ionization Detector (OVA/FID), and a 4-gas meter, for the screening of gas vapors.

On October 8, 2005, EE&G conducted soil vapor sampling activities. Soil gas measurements were conducted only from vapor points VP-1 through VP-16, because the readings consistently exceeded 100% of the Lower Explosive Limit (LEL), indicating a significant landfill gas presence in the subsurface beneath the proposed incineration area. On October 9, 2005, a second confirmatory event was conducted where soil gas measurements were obtained from eight selected vapor points (VP-2, VP-4, VP-6, VP-8, VP-9, VP-11, VP-13, and VP-15).

8.2 SOIL AND SEDIMENT ASSESSMENT METHODOLOGY

8.2.1 Soil and Sediment Sample Locations and Analytical Parameters

Surficial soil samples were collected to characterize the soil quality of the cover material prior to the commencement of significant debris reduction activities. Soil samples were collected from the 0 to 1 foot depth interval from the following general locations, as selected and approved by USACE personnel:

- Proposed incineration area (subsequently white goods area) – included an approximate 5 acre proposed incineration area, located centrally at the *Property*. Subsequent to EE&G's initial site reconnaissance and sampling activities, the proposed incineration area was eventually utilized for staging, segregating, cleaning and crushing of hurricane-affected white goods. Soil samples were collected from the locations of 11 of the 25 vapor monitoring points (VP-2, VP-5, VP-8, VP-10, VP-13, VP-14, VP-17, VP-19, VP-21, VP-23, and VP-25) using the direct push rig and macro-core sample tubes.
- Roadways – included temporary roads where trucks enter and leave site. Five soil samples (RW-1, RW-2, RW-3, RW-4, and RW-5) were collected by hand auger for laboratory analysis.
- Other locations – random samples to establish soil quality of cover soil. Four random soil samples (RND-1, RND-2, RND-3, and RND-4) were collected by hand auger for laboratory analysis.

Sediment samples were also collected from the banks of drainage ditches and swales at the perimeter of the *Property*. Five samples (SED-1, SED-2, SED-3, SED-4, and SED-5) were collected by hand auger for laboratory analysis.

The soil and sediment samples, with the exception of soil samples obtained from the vapor points, were collected using a hand auger. For the hand auger soil and sediment samples, the first depth interval (0 – 0.5 foot) from the hand auger sample collection bucket was placed into a decontaminated, stainless steel bowl for compositing. VOC and TPH-GRO samples were then collected with minimal disturbance from the second depth interval (0.5 – 1.0 feet) using TerraCore® sampling devices. The remaining soil from the 0.5 – 1.0 foot interval was placed into the stainless steel bowl for compositing. The soil in the bowl was thoroughly mixed until a uniform color and appearance was obtained. After mixing, each composite sample was transferred to laboratory-supplied glass sampling jars.

The soil samples collected from the vapor points were obtained by a direct push drill rig advancing a macro-core sampler. The macro-core tube was advanced by the direct push drill rig across the 0-2 foot interval. VOC and TPH-GRO samples were collected with minimal

disturbance from a depth of 0.5 feet interval using TerraCore® sampling devices. The 0 – 1.0 foot interval from the macro-core tube was then placed into a decontaminated, stainless steel bowl for compositing. The soil in the bowl was thoroughly mixed with stainless steel spoons before transfer to laboratory-supplied glass sampling jars. Nitrile or latex gloves were worn during all sampling activities and changed between samples to minimize the potential for cross contamination between samples.

All sampling equipment was decontaminated between the collection of samples. Decontamination procedures consisted of washing the equipment with a non-phosphate detergent (Liquinox®) and deionized water solution, followed by rinsing with deionized water. After the wash and rinse procedure, the decontaminated sampling equipment was allowed to air-dry.

The soil and sediment samples were collected in pre-cleaned, laboratory-supplied glass sampling jars, labeled and recorded in a chain of custody form. The TerraCore® sampling kits included a syringe for collection of five 5-gram aliquots of sample, which were transferred into three 40-milliliter (ml) glass vials containing methanol and three 40-ml glass vials containing sodium bisulfate, per SW 846 Method 5035. The samples were placed on ice in a cooler, and transported with accompanying chain-of-custody documentation to Pace Analytical, Inc. (Pace), a NELAC-certified laboratory, for the following analyses:

- Total petroleum hydrocarbons (TPH), divided into gasoline-range organics (GRO), diesel-range organics (DRO) and oil-range organics (ORO) by SW 846 Method 8015.
- Volatile organic compounds (VOCs) by SW 846 Methods 5035/8260.
- RCRA 8 metals, including arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver by SW 846 Methods 6010 and 7471.
- Polynuclear aromatic hydrocarbons (PAH) by SW 846 Method 8270.
- Organochlorine pesticides by SW 846 Method 8081.
- Chlorinated herbicides by SW 846 Method 8151.
- Polychlorinated biphenyls (PCBs) by SW 846 Method 8082.
- Dioxins/ Furans by SW 846 8290 (only three samples).
- Asbestos by polarizing light microscopy (PLM).

8.2.2 Soil Quality Assurance/Quality Control (QA/QC) Samples

QA/QC samples were collected and analyzed for the above parameters, as follows:

- Two duplicate samples (RND-44 and VP-25), at a rate of one duplicate sample per each 10 soil/sediment samples collected. Duplicate sample collection methodology consisted of alternate filling of sample containers in equal aliquots from the same composite material.

- Three equipment rinsate blanks, at a rate of one equipment rinsate blank sample per each day of sampling activities. Rinse blanks collection methodology consisted of pouring deionized water over decontaminated equipment (typically the stainless mixing bowls or spoons), then into the sample containers.
- One method spike sample (RND-4MS), at rate of one method spike sample per 20 soil/sediment samples collected

In addition to the above, one trip blank accompanied each cooler of samples, and was analyzed for VOCs by SW 846 Method 8260.

8.3 GROUNDWATER ASSESSMENT METHODOLOGY

8.3.1 Groundwater Sample Locations and Analytical Parameters

On October 10, 2005, EE&G advanced eight direct-push points (designated GP-1 through GP-8) at the *Property* for the collection of shallow groundwater samples. Additionally, groundwater samples were collected from two of five monitoring wells (MW-1 and MW-5) that had been previously utilized for landfill post-closure monitoring. The locations of these groundwater sampling points are presented in Figure 3. The following is a summary of the sampling locations:

- GP-1 was located at the intersection of the landfill access road and Almonaster Avenue, near the north-central boundary of the *Property*.
- GP-2 was located near the western extent of planned C&D debris placement, near the center of the *Property*.
- GP-3 was located near the south-central boundary of the *Property*, to the north of the Intracoastal Waterway levee.
- GP-4 was located near the northwest corner of the proposed incineration area, which was subsequently used for white goods cleaning and compaction.
- GP-5 was located near the southwest corner of the *Property*, to the north of the Intracoastal Waterway levee.
- GP-6 was located near the west-central boundary of the *Property*.
- GP-7 was located near the northeast boundary of the *Property*.
- GP-8 was located near the southeast boundary of the *Property*.
- MW-1 was located near the northern boundary of the *Property*, adjacent to the east side of the main entrance to the *Property*.
- Monitoring well MW-5 was located near the southwest corner of the *Property*.

Four other pre-existing monitoring wells (MW-2, MW-3, MW-4, and MW-6) reported to exist at the *Property* could not be located.

Temporary monitoring wells were constructed at each direct-push point, in accordance with Louisiana Department of Transportation and Development (LDOTD) and LDEQ guidelines. Each temporary well was constructed of 1-inch diameter, Schedule 40 PVC with a 5-foot section of 0.01-inch slotted screen. The annulus of each temporary monitoring well was filled with a sand filter pack to ground surface. The completed depths of each temporary well are listed below:

- GP-1 – 7.5 feet below land surface (bls)
- GP-2 – 15 feet bls
- GP-3 – 5 feet bls
- GP-4 – 9 feet bls
- GP-5 – 5 feet bls
- GP-6 – 11.5 feet bls
- GP-7 – 10 feet bls
- GP-8 – 7 feet bls

Pre-existing monitoring wells MW-1 and MW-5 were both completed to a depth of 27.5 feet, with a 2.5-foot long screened section from 22.0 to 24.5 feet bls.

Ground water sampling activities were conducted in accordance with the LDEQ RECAP guidance and EPA protocols. Prior to sampling, the temporary and permanent monitoring wells were purged with a peristaltic pump and disposable tubing until the pH, conductivity, and temperature measurements stabilized, or until the sampling points were purged to dryness, whichever occurred first. Nitrile or latex gloves were worn during all sampling activities and changed between samples to minimize the potential for cross contamination between samples.

Temporary monitoring well GP-8 did not yield sufficient quantities of water for the collection of samples. Groundwater samples from temporary monitoring wells GP-1 through GP-7 and monitoring wells MW-1 and MW-5 were collected in laboratory supplied, pre-cleaned sample bottles, placed on ice, and transported to Pace, a NELAC-certified laboratory for analyses of the following parameters:

- TPH-GRO, -DRO and -ORO by SW 846 Method 8015.
- VOCs by SW 846 Method 8260.
- Total RCRA 8 metals, including arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver by SW 846 Methods 6010 and 7471.
- Dissolved RCRA 8 metals, including arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver by SW 846 Methods 6010 and 7471.
- PAHs by SW 846 Method 8270.
- Organochlorine pesticides by SW 846 Method 8081.
- Chlorinated herbicides by SW 846 Method 8151.

- PCBs by SW 846 Method 8082.
- Nitrate/nitrite by SW 846 Method 353.2.
- Nitrogen as ammonia by SW 846 Method 350.1.
- Chloride by SW 846 Method 325.2.
- Total cyanide by SW 846 Method 335.2.
- Total dissolved solids (TDS) by SW 846 Method 160.1.

8.3.2 Groundwater Quality Assurance/Quality Control (QA/QC) Samples

QA/QC samples were collected and analyzed for the above parameters, as follows:

- One duplicate sample (GP-55), at a rate of one duplicate sample per each 10 groundwater samples collected. Duplicate sample collection methodology consisted of alternate filling of sample containers in equal aliquots during the collection of water samples from GP-5.
- One equipment rinsate blank, at a rate of one equipment rinsate per each day of sampling activities. The rinse blank was collected by inserting the inlet of sampling tubing into a container of deionized water and drawing the deionized water into sample containers using the peristaltic pump.

In addition to the above, one trip blank accompanied each cooler of samples, and was analyzed for VOCs by SW 846 Method 8260.

SECTION 9.0 BASELINE PHASE II ESA FINDINGS

9.1 SOIL GAS SURVEY FINDINGS

On October 8, 2005, soil gas readings were collected from vapor points VP-1 through VP-16. On October 9, 2005, a confirmation event was conducted from eight selected vapor points (VP-2, VP-4, VP-6, VP-8, VP-9, VP-11, VP-13, and VP-15).

Flammable vapor measurements exceeded 100% of the LEL in 15 of the 16 vapor points on October 8, 2005. OVA/FID measurements could not be recorded, as the flame was extinguished consistently when measurements were attempted, due to the elevated concentration of methane and the corresponding lack of oxygen. Although direct measurements of methane could not be obtained with the OVA/FID, the elevated LEL readings and extinguishing of the OVA/FID flame indicated significantly elevated methane concentrations in soil vapor. The confirmation event on October 9, 2005 produced similar results.

Concentrations of carbon monoxide ranged from nondetectable (VP-1, -2, -4, -5, -6, -7, -10, -11, -13, and -15) to 24 parts per million (ppm) in vapor point VP-3. Concentrations of hydrogen sulfide, which is indicative of the degradation of organic materials in the absence of oxygen, ranged from nondetectable (VP-11) to greater than 200 ppm (VP-3).

9.2 SOIL LITHOLOGY

Soil samples collected from eight temporary monitoring well boreholes outside the landfill footprint were examined for lithologic characteristics. The natural lithology of the soil samples to approximately 15 feet BLS were characterized as deltaic sediments that consisted of fine grained silty sediments. Coarser grained sands were intermixed at various depths.

9.3 SOIL AND SEDIMENT ANALYTICAL RESULTS

A copy of the soil and sediment laboratory analytical results and chain-of-custody (COC) forms are provided in **Appendix H**. The soil analytical results are summarized in **Table 1**. The results of the chemical analyses were compared to LDEQ Risk Evaluation/Corrective Action Program (RECAP) soil screening standards (SS) for the non-industrial (SSni) direct exposure, industrial (SSi) direct exposure, and groundwater protection (SSGW) scenarios, using the most conservative of the three SS to denote exceedances, where applicable. The following is a discussion of the analytical results, presented by parameter type.

- **TPH-GRO:** TPH-GRO concentrations did not exceed the laboratory method reporting limit (RL) in any of the soil/sediment samples analyzed.
- **TPH-DRO:** TPH-DRO concentrations exceeded the SSni concentration of 65 milligrams per kilogram (mg/kg) in one of the sediment samples (SED-5 at 71.1 mg/kg). No other exceedances of the TPG-GRO SSni were reported in any of the soil or sediment samples analyzed.
- **TPH-ORO:** TPH-ORO concentrations did not exceed the SSni concentration of 180 mg/kg in any of the soil/sediment samples analyzed.

- **VOCs:** VOC constituent concentrations were either below laboratory method RLs or did not exceed the applicable SS concentrations in any of the soil/sediment samples analyzed.
- **Metals:** Metals constituent concentrations were either below laboratory method RLs or did not exceed the applicable SS concentrations in any of the soil/sediment samples analyzed.
- **PAHs:** PAH constituent concentrations were either below laboratory method RLs or did not exceed the applicable SS concentrations in any of the soil/sediment samples analyzed.
- **Pesticides:** Pesticides constituent concentrations were either below laboratory method RLs or did not exceed the applicable SS concentrations in any of the soil/sediment samples analyzed.
- **Herbicides:** Herbicides constituent concentrations were below laboratory method RLs in all of the soil/sediment samples analyzed.
- **PCBs:** PCBs constituent concentrations were below laboratory method RLs in all of the soil samples analyzed.
- **Dioxins/furans:** Three of the soil samples collected from the proposed incineration area (VP-2, VP-10, and VP-17) were analyzed for the presence of dioxins/ furans. In accordance with LDEQ guidance, dioxin/furan congeners detected in the three soil samples were evaluated using Toxicity Equivalency Factors (TEFs), relative to the most toxic congener, 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), and used to calculate toxic equivalent concentrations (TEQs) for comparison to soil screening criteria. As shown in Table 2, all congener TEQ values were less than the screening criteria of 0.001 mg/L for 2,3,7,8-TCDD.

QA/QC sample results indicated that the data obtained from the soil and sediment sampling are valid. Duplicate sample results were within an acceptable 10% margin of error. Equipment rinsate blanks and trip blanks results indicated that no analytical parameters were detected above laboratory method RLs.

9.4 GROUNDWATER ANALYTICAL RESULTS

A copy of the groundwater laboratory analytical results and Chain-of-Custody forms are provided in Appendix I. The groundwater analytical results are summarized in Table 3. The groundwater analytical results were compared to RECAP groundwater screening standards (GW-SS). The following is a discussion of the analytical results.

- **TPH-GRO:** TPH-GRO concentrations did not exceed the laboratory method RLs in any of the groundwater samples analyzed.
- **TPH-DRO:** TPH-DRO concentrations exceeded the GW-SS of 0.15 mg/L in all of the groundwater samples analyzed. The TPH-DRO concentrations ranged from 0.350 mg/L in monitoring well MW-1 to 2.18 mg/L in temporary monitoring well GP-4.

- **TPH-ORO:** TPH-ORO concentrations exceeded the GW-SS of 0.15 mg/L in five of the groundwater samples (GP-1, -2, -4, -6, and -7). Groundwater samples from GP-3, GP-5, MW-1, and MW-5 did not contain TPH-ORO concentrations in excess of the laboratory method RL.
- **VOCs:** VOC constituent concentrations were either below laboratory method RLs or did not exceed GW-SS concentrations in any of the groundwater samples analyzed, with the exception of bis(2-ethylhexyl)phthalate at a concentration of 0.0509 mg/L in MW-1. The GW-SS for bis(2-ethylhexyl)phthalate is 0.006 mg/L. This compound is a common laboratory contaminant.
- **Metals:** Metal concentrations did not exceed applicable GW-SS in groundwater samples analyzed, with the following exceptions:
 - Total lead concentrations of 0.125 mg/L, 0.0151 mg/L, and 0.0268 mg/L were reported by the laboratory in samples GP-1, GP-7, and MW-1, respectively in excess of the lead GW-SS of 0.015 mg/L
 - Total arsenic concentration of 0.0102 mg/L was reported by the laboratory in the sample from monitoring well MW-1 in excess of the GW-SS of 0.01 mg/L
 - Dissolved arsenic concentration of 0.0115 mg/L was reported by the laboratory in the sample from monitoring well MW-1.

Total and dissolved metals constituent concentration in the other groundwater samples analyzed were either below the applicable GW-SS, or below the laboratory method RLs.

- **PAHs:** PAH constituent concentrations were either below laboratory method RLs or did not exceed GW-SS concentrations in the groundwater samples analyzed.
- **Pesticides:** Pesticides constituent concentrations did not exceed the laboratory method RLs in the groundwater samples analyzed.
- **Herbicides:** Herbicides constituent concentrations did not exceed the laboratory method RLs in the groundwater samples analyzed.
- **PCBs:** PCBs constituent concentrations did not exceed the laboratory method RLs in the groundwater samples analyzed.
- **Ammonia:** Ammonia as nitrogen concentrations ranged from 7.26 mg/L in GP-1 to 71.5 mg/L in GP-4. Although a GW-SS for ammonia was not listed in Table 1 of RECAP, these concentrations exceed the EPA surface water guidance concentration (protective of aquatic life) of 4.15 mg/L. These concentrations are typical of groundwater impacted by municipal solid waste degradation.
- **Cyanide:** Cyanide concentrations did not exceed the GW-SS of 0.2 mg/L in any of the groundwater samples analyzed. The only sample which exceeded the laboratory method RL for cyanide was GP-5 at 0.0547 mg/L.

- **Nitrate/Nitrite:** Nitrate/Nitrite concentrations did not exceed the laboratory method RLs in the groundwater samples analyzed.
- **Chlorides:** Chloride concentrations ranged from 185 mg/L in GP-7 to 3,440 mg/kg in MW-1.
- **Total dissolved solids (TDS):** TDS concentrations ranged from 7,810 in MW-1 and MW-5 to 1,140 mg/L in GP-7.

QA/QC sample results indicated that the data obtained from the groundwater sampling are valid. Duplicate sample results were within an acceptable 10% margin of error. Trip blanks results indicated that no analytical parameters were detected above laboratory method RLs. Equipment rinsate blanks indicated that no analytical parameters were detected above laboratory method RLs, with the exception of lead at 0.00984 mg/L and nitrogen ammonia at 0.246 mg/L.

SECTION 10.0 BASELINE PHASE II ESA CONCLUSIONS

A Phase II ESA was conducted at the *Property* to assess the surficial soils, sediment, and groundwater at the former landfill facility for the presence of COCs. The historical operation of the former Gentilly Landfill at the *Property* as identified within the Phase I ESA (see Section 7 of this document) may have produced impacts to the subsurface that could remain in the subsurface. Based on the interpretation of the Phase II ESA findings, the following conclusions were developed.

10.1 VAPOR

EE&G collected vapor samples from 24 shallow vapor points in the proposed debris incineration area at the *Property*. Vapor measurements in excess of 100% of the LEL were identified in conjunction with elevated concentrations of methane. The production of these types of vapors are typical former municipal solid waste landfill environments where putrescible materials are buried and methane gas is produced due to anaerobic degradation processes. Based on these results, a decision was made not to conduct debris incineration at the *Property* and the area was subsequently designated for white goods staging, cleaning, and compaction activities.

10.2 SOIL AND SEDIMENT

EE&G collected 25 soil and sediment samples from various locations at the *Property*, as approved by the US Army Corps of Engineers. The results of the soil samples analyzed did not exceed RECAP Screening Standards for tested constituents, with the exception of TPH-DRO at 71.1 mg/kg in sample SED-5. These data suggest that the landfill cover and storm water drainage canal/swale sediments in the areas tested did not appear to contain constituents of concern at concentrations that warrant concern.

10.3 GROUNDWATER

EE&G collected groundwater samples from seven temporary monitoring wells and two pre-existing monitoring wells at the *Property*. The temporary well locations were approved by the US Army Corps of Engineers. The results of the groundwater samples analyzed did not exceed RECAP Screening Standards for the tested constituents, with the following exceptions:

- TPH-DRO concentrations exceeded the GW-SS of 0.15 mg/L in each of the 10 groundwater samples analyzed (including the duplicate sample).
- TPH-ORO concentrations exceeded the GW-SS of 0.15 mg/L in 5 of the 10 groundwater samples analyzed (including the duplicate sample).
- Total lead was detected at 0.125 mg/L, 0.0151 mg/L, and 0.0268 mg/L in samples GP-1, GP-7, and MW-1, respectively. The GW-SS for lead is 0.015 mg/L.
- Total arsenic was detected at 0.0102 mg/L in the sample from monitoring well MW-1. Dissolved arsenic was detected at 0.0115 mg/L in the sample from monitoring well MW-1. The GW-SS for arsenic is 0.01 mg/L.

Residual dissolved petroleum hydrocarbon concentrations detected in groundwater are likely the result of previous use of the *Property* as a municipal landfill; however, it should be noted that TPH constituents were not previously monitored at the *Property*.

The total lead GW-SS exceedances listed above are likely the result of suspended sediments contained in relatively turbid samples resulting from the methodology of temporary monitoring well installation. This conclusion is supported by corresponding dissolved lead concentrations that were below RECAP screening standards at these sample points. The total and dissolved arsenic concentrations at MW-1 was essentially equal to the total arsenic RECAP screening standard of 0.01 mg/L. Thus, arsenic and lead do not appear to be a significant groundwater quality concern in the areas tested.

It is important to recognize that the results of this assessment should not be considered a guarantee that other areas of the *Property* are not impacted by COCs. Due to the size of this facility, the US Army Corps of Engineers and EE&G designed the sampling strategy to assess for the presence of COCs in the vicinity of areas that were considered representative of site conditions and that would allow comparison to post-project assessment data, prior to site restoration activities (if any).

**SECTION 11.0
DEVIATIONS & ADDITIONAL SERVICES**

No deviations from the ASTM Designation E 1527-00 were required to complete this Limited Phase I/ Baseline Phase II ESA.

SECTION 12.0 STATEMENT OF QUALIFICATIONS

EE&G is a full-service environmental, engineering, and consulting firm offering its clients a broad range of consulting, testing, and laboratory services. EE&G was founded in 1986 and has been offering environmental services for over 18 years. Its professional services include:

- Environmental Site Assessments (Phases I and II).
- Brownfields Site Reuse Studies.
- Underground Storage Tank Management.
- Environmental Remediation Services.
- Environmental Engineering and Permitting.
- Hazardous Waste Management.
- Air, Water, and Soil Testing; Analysis and Consulting.
- Industrial Hygiene Services.
- Asbestos, Radon, and Lead-based Paint Testing; Analysis, and Consulting.
- Indoor Air Quality Investigation and Mitigation.
- Environmental Training and Education.
- Wetlands Management.

EE&G is headquartered in Miami, Florida, and has five branch offices located throughout the state of Florida. An in-house asbestos laboratory supports operations and provides quick turn-around time as well as quality control and project follow-through in all phases of work.

EE&G has established a team of approximately 60 full-time employees in fields such as geology, hydrogeology, engineering, toxicology, industrial hygiene, chemistry, and biology. All work is conducted by well trained, educated, and licensed (where appropriate) personnel working under the direct supervision of a licensed professional.

Phase I and Phase II Environmental Site Assessments are performed by a team of experienced environmental specialists and reviewed by licensed professionals to assure accurate, high-quality results. EE&G has extensive experience in the environmental consulting industry and is currently under contract with local, state, and federal government agencies, military services, and private corporations.

12.1 KEY PERSONNEL EXPERIENCE SUMMARY

To provide our clients the highest quality of services, EE&G has assembled an exceptional team of registered and experienced professionals. EE&G's team brings together expertise in hazardous substance/hazardous wastes, engineering and construction management, indoor air quality, industrial hygiene, lead-based paint and asbestos consulting services. Key staff members are seasoned professionals, with the education, background and work experience to provide competent and effective services.

Timothy R. Gipe - President/Director of Consulting Services

Mr. Gipe is the President of EE&G and has been responsible for the overall management and direction of EE&G since 1996. Mr. Gipe is responsible for the technical, administrative, and fiscal management of the firm, including direction of the firm's business development activities. As President, Mr. Gipe has led EE&G to increasing profits, client and business diversification, and both revenue and geographical growth.

Craig C. Clevenger, P.G. – Senior Technical Advisor

Mr. Clevenger is a Florida Professional Geologist and has over 14 years of experience in the South Florida environmental consulting field involving the management of soil/groundwater assessment and remediation projects, including the characterization and delineation of subsurface impacts, design of remedial and monitoring systems, the preparation of professional CAP, CAR, RAP and MOP reports, associated client and regulatory agency relations, team leadership and sales and marketing efforts. Mr. Clevenger is responsible for managing and providing senior technical oversight for EE&G's major clients, including City of Fort Lauderdale, Auto Nation, Marriott International Corporation, Sunburst Hospitality Corporation, Lennar Partners, Archon Group, Quik Park Garage, Jackson Memorial Hospital, and recently managed the City of Miami's Brownfields redevelopment contract. Prior notable experience included the successful management of numerous environmental assessment and remediation projects at the Miami International Airport under the Dade County Aviation Department (DCAD) and Dade County Environmental Resources Management (DERM-04) contracts.

Steven A. Harrison, P.G. – Miami Hazardous Substance Practice Area Leader

Mr. Harrison is both a Florida and Georgia Professional Geologist with more than 12 years of experience in the Florida and Georgia environmental industry. Mr. Harrison has been actively involved in all aspects of environmental practice including the assessment and remediation of groundwater and soil, removal and installation of storage tank systems, industrial and RCRA waste disposal, and real estate transactional investigations as major target areas. Mr. Harrison has worked with a diverse array of clients ranging from the independent property owner to municipalities and Fortune 500 companies to satisfy their business and regulatory environmental concerns.

Chris Johnson, P.G. – Project Manager

Mr. Johnson is a Tennessee-registered Professional Geologist with more than 15 years of experience in the environmental industry, including more than five years of environmental experience in Louisiana. With an emphasis on site investigation, remediation, groundwater monitoring and risk evaluation, Mr. Johnson's environmental experience has included industrial/RCRA, petroleum underground storage tank, and petroleum pipeline sites in Louisiana, Tennessee, Mississippi, Alabama, Arkansas, Florida, Georgia, Kentucky, Virginia, Maryland, the District of Columbia, and the People's Republic of China. Mr. Johnson's responsibilities have included supervision of project staff, preparation of project work scopes and budgets, performance and coordination of field activities, analysis of field and laboratory data, preparation and technical review of reports and correspondence, and negotiation with regulatory authorities.

SECTION 13.0 REFERENCES

13.1 RECORDS OF COMMUNICATION

- Mr. Rick Hockett – United States Army Corps of Engineers
- Mr. Albert Reyes – United States Army Corps of Engineers
- Mr. Rick Keenan - Golder & Associates
- Mr. Timothy Smith – Louisiana Department of Environmental Quality

13.2 REGULATORY RECORDS AND PUBLIC DOCUMENTS

- Louisiana Department of Environmental Quality Public Records Center.
- Louisiana State University Cartographic Information Center
- Louisiana Department of Transportation and Development

13.3 PUBLISHED REFERENCES

- *Risk Evaluation–Corrective Action Program*, October 2003 - Louisiana Department of Environmental Quality.
- Sanborn Fire Insurance Map.
- *Ground-Water Resources of the Greater New Orleans Area*, *Water Resource Bulletin No. 9*, 1966, Louisiana Department of Conservation.
- EPA Publication - A Guide to Indoor Air Quality.
- *Lead Based Paint in Public Housing*, 1989, U.S. Housing and Urban Development.
- Fletcher G. Driscoll, 1987, "*Groundwater and Wells*", 2nd Edition, Johnson Well Division.
- Holmes, Singh, and Theodore, 1993, "Handbook of Environmental Management and Technology", John Wiley & Sons, Inc.

13.4 DEFINITIONS

- **Activity and use limitations** – legal or physical restrictions or limitations on the use of, or access to, a site or facility: (1) to reduce or eliminate potential exposure to hazardous substances in the soil or ground water at the *Property*, or (2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or engineering controls, are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances in the soil or ground water on the *Property*.

- **Construction debris** – concrete, brick, asphalt, and other such building materials discarded in the construction of a building or other improvement to *Property*.
- **CORRACTS list** – list of hazardous waste treatment, storage, or disposal facilities and other RCRIS facilities (due to past interim status or storage of hazardous waste beyond 90 days) who have been notified by the U.S. Environmental Protection Agency to undertake corrective action under RCRA.
- **Demolition debris** – concrete, brick, asphalt, and other such building materials discarded in the demolition of a building or other improvement to *Property*.
- **Dry wells** – underground areas where soil has been removed and replaced with pea gravel, coarse sand, or large rocks. Dry wells are used for drainage, to control storm runoff, for the collection of spilled liquids (intentional and non-intentional) and wastewater disposal (often illegal).
- **Engineering controls** – physical modifications to a site or facility (for example, capping, slurry walls, or point of use water treatment) to reduce or eliminate the potential for exposure to hazardous substances in the soil or ground water on the *Property*.
- **Environmental lien** – a charge, security, or encumbrance upon title to a *property* to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of *hazardous substances* or *petroleum products* upon a *property*, including (but not limited to) liens imposed pursuant to CERCLA 42 USC§ 9607(1) and similar state or local laws.
- **ERNS list** – EPA's emergency response notification system list of reported CERCLA hazardous substance releases or spills in quantities greater than the reportable quantity, as maintained at the National Response Center. Notification requirements for such releases or spills are codified in 40 CFR Parts 302 and 355.
- **Hazardous substance** – A substance defined as a hazardous substance pursuant to CERCLA 42 USC§ 9601(14), as interpreted by EPA regulations and the courts: (A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title, (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC § 6901 *et seq.*) has been suspended by Act of Congress), (D) any toxic pollutant listed under section 1317(a) of Title 33, (E) any hazardous air pollutant listed under section 112 of the Clean Air Act (42 USC § 7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator (of EPA) has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids,

liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)." (See Appendix XI.)

- **Hazardous waste** – any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (42 USC § 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC § 6901 *et seq.*) has been suspended by Act of Congress). The Solid Waste Disposal Act of 1980 amended RCRA. RCRA defines a hazardous waste, in 42 USC § 6903, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may- (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."
- **Institutional controls** – a legal or administrative restriction (for example, deed restriction, restrictive zoning) on the use of, or access to, a site or facility to reduce or eliminate potential exposure to hazardous substances in the soil or ground water on the *Property*.
- **Material safety data sheet (MSDS)** – written or printed material concerning a hazardous substance which is prepared by chemical manufacturers, importers, and employers for hazardous chemicals pursuant to OSHA's Hazard Communication Standard, 29 CFR 1910.1200.
- **National Contingency Plan (NCP)** – the National Oil and Hazardous Substance Pollution Contingency Plan, found at 40 CFR § 300, that is the EPA's blueprint on how hazardous substances are to be cleaned up pursuant to CERCLA.
- **Occupants** – those tenants, subtenants, or other persons or entities using the *property* or a portion of the *property*.
- **Owner** – generally the fee owner of record of the *property*.
- **Petroleum exclusion** – the exclusion from CERCLA liability provided in 42 USC § 9601(14), as interpreted by the courts and EPA: "The term (hazardous substance) does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."
- **Petroleum products** – those substances included within the meaning of the *petroleum exclusion* to CERCLA, 42 USC § 9601(14), as interpreted by the courts and EPA, that is: petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under Subparagraphs (a) through (f) of 42 USC § 9601(14), natural gas, natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). (The word fraction refers to

certain distillates of crude oil, including gasoline, kerosene, diesel oil, jet fuels, and fuel oil, pursuant to *Standard Definitions of Petroleum Statistics*.

- **Pits, ponds, or lagoons** – man-made or natural depressions in a ground surface that are likely to hold liquids or sludge containing *hazardous substances* or *petroleum products*. The likelihood of such liquids or sludge being present is determined by evidence of factors associated with the pit, pond, or lagoon, including, but not limited to, discolored water, distressed vegetation, or the presence of an obvious wastewater discharge.
- **Property** – the real property that is the subject of the *environmental site assessment* described in this practice. Real property includes buildings and other fixtures and improvements located on the property and affixed to the land.
- **RCRA TSD facilities** – those facilities on which treatment, storage, and/or disposal of hazardous wastes take place, as defined and regulated by RCRA.
- **Solvent** – a chemical compound that is capable of dissolving another substance and may itself be a *hazardous substance*, used in a number of manufacturing/industrial processes including but not limited to the manufacture of paints and coatings for industrial and household purposes, equipment clean-up, and surface degreasing in metal fabricating industries.
- **Sump** – a pit, cistern, cesspool, or similar receptacle where liquids drain, collect, or are stored.
- **TSD facility** – treatment, storage, or disposal facility (see RCRA TSD facilities).
- **Underground storage tanks (UST)** – any tank, including underground piping connected to the tank, that is or has been used to contain *hazardous substances* or *petroleum products* and the volume of which is 10% or more beneath the surface of the ground.
- **Wastewater** – water that (1) is or has been used in an industrial or manufacturing process, (2) conveys or has conveyed sewage, or (3) is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. Wastewater does not include water originating on or passing through or adjacent to a site, such as storm water flows, that has not been used in industrial or manufacturing processes, has not been combined with sewage, or is not directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

13.5 ADDITIONAL DEFINITIONS – SPECIFIC TO ESA

- **Actual knowledge** – the knowledge actually possessed by an individual who is a real person, rather than an entity. Actual knowledge is to be distinguished from constructive knowledge that is knowledge imputed to an individual or entity.
- **Adjoining properties** – any real property or properties the border of which is contiguous or partially contiguous with that of the property, or that would be

contiguous or partially contiguous with that of the property but for a street, road, or other public thoroughfare separating them.

- **Appropriate inquiry** – that inquiry constituting “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” as defined in CERCLA, 42 USC § 9601(35)(B), that will give a party to a *commercial real estate* transaction the *innocent landowner defense* to CERCLA liability (42 USC § 9601(A) and (B) and § 9607(b)(3)), assuming compliance with other elements of the defense. See Appendix X1.
- **Business environmental risk** – a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of *business environmental risk* issues may involve addressing one or more non-scope considerations, some of which are identified in Section 12.
- **Due diligence** – the process of inquiring into the environmental characteristics of a parcel of *commercial real estate* or other conditions, usually in connection with a commercial real estate transaction. The degree and kind of due diligence vary for different properties and differing purposes.
- **Environmental audit** – the investigative process to determine if the operations of an existing facility are in compliance with applicable environmental laws and regulations. This term should not be used to describe Practice E 1528 or 1527, although an environmental audit may include an *environmental site assessment* or, if prior audits are available, may be part of an environmental site assessment.
- **Environmental professional** – a person possessing sufficient training and experience necessary to conduct a *site reconnaissance*, *interviews*, and other activities in accordance with this practice, and from the information generated by such activities, having the ability to develop opinions and conclusions regarding *recognized environmental conditions* in connection with the *property* in question. An individual’s status as an environmental professional may be limited to the type of assessment to be performed or to specific segments of the assessment for which the professional is responsible. The person may be an independent contractor or an employee of the *user*.
- **Environmental site assessment (ESA)** – the process by which a person or entity seeks to determine if a particular parcel of *real property* (including improvements) is subject to *recognized environmental conditions*. At the option of the user, an environmental site assessment may include more inquiry than that constituting *appropriate inquiry* or, if the user is not concerned about qualifying for the *innocent landowner defense*, less inquiry than that constituting *appropriate inquiry*. An environmental site assessment is both different from and less rigorous than an *environmental audit*.
- **Historical recognized environmental condition** – environmental condition which in the past would have been considered a *recognized environmental condition*, but which may or may not be considered a *recognized environmental*

condition currently. The final decision rests with the *environmental professional* and will be influenced by the current impact of the *historical recognized environmental condition* on the property. If a past release of any hazardous substances or petroleum products has occurred in connection with the property and has been remediated, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent), this condition shall be considered an *historical recognized environmental condition* and included in the findings section of the Phase I *Environmental Site Assessment* report. The *environmental professional* shall provide an opinion of the current impact on the property of this *historical recognized environmental condition* in the opinion section of the report. If this *historical recognized environmental condition* at the time the Phase I *Environmental Site Assessment* is conducted, the condition shall be identified as such and listed in the conclusions section of the report.

- **Innocent landowner defense** – that defense to CERCLA liability provided in 42 USC § 9601(35) and § 9607(b)(3). One of the requirements to qualify for this defense is that the party make “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice.” There are additional requirements to qualify for this defense. See Appendix X1.
- **Key site manager** – the person identified by the *owner* of a *property* as having good knowledge of the uses and physical characteristics of the property. See 9.5.1.
- **Material threat** – a physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the *environmental professional*, is threatening and might result in impact to public health of the environment. An example might include an aboveground storage tank that contains a hazardous substance and which shows evidence of damage. The damage would represent a material threat if it is deemed serious enough that it may cause or contribute to tank integrity failure with a release of contents to the environment.
- **Obvious** – that which is plain or evident; a condition or fact that could not be ignored or overlooked by a reasonable observer while *visually or physically observing the property*.
- **Other historical sources** – any source or sources other than those designated in 7.3.4.1 through 7.3.4.8 that are credible to a reasonable person and that identify past uses of the property. The term includes, but is not limited to : miscellaneous maps, newspaper archives, and records in the files and/or personal knowledge of the *property owner and/or occupants*. See 7.3.4.9.
- **Practically reviewable** – information that is practically reviewable means that the information is provided by the source in a manner and in a form that, upon examination, yields information relevant to the *property* without the need for extraordinary analysis or irrelevant data. The form of the information shall be such that the user can review the records for a limited geographic area. Records that cannot be feasibly retrieved by reference to the location of the *property* or a

geographic area in which the *property* is located are not generally *practically reviewable*. Most databases of public records are *practically reviewable* if they can be obtained from the source agency by the county, city, zip code, or other geographic area of the facilities listed in the record system. Records that are sorted, filed, organized, or maintained by the source agency only chronologically are not generally *practically reviewable*. Listings in publicly available records which do not have adequate address information to be located geographically are not generally considered *practically reviewable*. For large databases with numerous facility records (such as RCRA hazardous waste generators and registered underground storage tanks), the records are not *practically reviewable* unless they can be obtained from the source agency in the smaller geographic area of zip codes. Even when information is provided by zip code for some large databases, it is common for an unmanageable number of sites to be identified within a given zip code. In these cases, it is not necessary to review the impact of all of the sites that are likely to be listed in any given zip code because that information would not be *practically reviewable*. In other words, when so much data is generated that it cannot be feasibly reviewed for its impact on the *property*, it is not *practically reviewable*.

- **Publicly available** – information that is publicly available means that the source of the information allows access to the information by anyone upon request.
- **Reasonably ascertainable** – for purposes of both Practice E 1527 and 1528, information that is (1) *publicly available*, (2) obtainable from its source within reasonable time and cost constraints, and (3) *practically reviewable*.
- **Recognized environmental conditions** – the presence or likely presence of any *hazardous substances* or *petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a material threat of a release of any *hazardous substances* or *petroleum products* into structures on the *property* or into the ground, ground water, or surface water of the *property*. The term includes *hazardous substances* or *petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not *recognized environmental conditions*.
- **User** – the party seeking to use Practices E 1527 or E 1528 to perform an *environmental site assessment* of the *property*. A user may include, without limitation, a purchaser of *property*, a potential tenant of *property*, an *owner* of *property*, a lender, or a *property manager*.
- **Visually and/or physically observed** – during a *site visit* pursuant to Practice E 1528, or pursuant to this practice, this term generally means observations made by vision while walking through a *property* and the structures located on it and observations made by the sense of smell, particularly observations of noxious or foul odors. The term “walking through” is not meant to imply that disabled persons who cannot physically walk may not conduct a *site visit*; they may do so

by the means at their disposal for moving through the *property* and the structures located in it.

13.6 ACRONYMS

- **CERCLA**-Comprehensive Environmental Response, Compensation and Liability Act of 1980 (as amended, 42 USC § 9601 *et seq.*).
- **CERCLIS**-Comprehensive Environmental Response, Compensation and Liability Information System (maintained by EPA).
- **CFR**-Code of Federal Regulations.
- **CORRACTS**-facilities subject to Corrective Action under RCRA.
- **EPA**-United States Environmental Protection Agency.
- **EPCRA**-Emergency Planning and Community Right to Know Act ((also known as SARA Title III), 42 USC § 11001 *et seq.*).
- **ERNS**-emergency response notification system.
- **ESA**-environmental site assessment (different than an *environmental audit*; see 3.3.13).
- **FOIA**-U.S. Freedom of Information Act (5 USC 552 *et seq.*).
- **FR**-Federal Register.
- **LDEQ**-Louisiana Department of Environmental Quality
- **LUST**-leaking underground storage tank.
- **MSDS**-material safety data sheet.
- **NCP**-National Contingency Plan.
- **NFRAP**-former CERCLIS sites where no further remedial action is planned under CERCLA.
- **NPDES**-national pollutant discharge elimination system.
- **NPL**-national priorities list.
- **PCBs**-polychlorinated biphenyls.
- **PRP**-potentially responsible party (pursuant to CERCLA 42 USC § 9607(a)).
- **RECAP**-Risk Evaluation-Corrective Action Program (2003)

- **RCRA**-Resource Conservation and Recovery Act (as amended, 42 USC § 6901 *et seq.*).
- **SARA**-Superfund Amendments and Reauthorization Act of 1986 (amendment to CERCLA).
- **TSD**-hazardous waste treatment, storage or disposal facility.
- **USC**-United States Code.
- **USGS**-United States Geological Survey.
- **UST**-underground storage tank.

FIGURES

TABLES

APPENDIX A
SITE PHOTOGRAPHS

APPENDIX B
HISTORICAL AERIAL PHOTOGRAPHS

APPENDIX C
HISTORICAL TOPOGRAPHIC MAPS

APPENDIX D
SANBORN FIRE INSURANCE MAPS

APPENDIX E
CITY DIRECTORY ABSTRACT

APPENDIX F
ENVIRONMENTAL DATABASE SEARCH REPORT

APPENDIX G
EXCERPTS FROM LDEQ FILE REVIEW

APPENDIX H

SOIL ANALYTICAL REPORT AND CHAIN-OF-CUSTODY FORMS

APPENDIX I

GROUNDWATER ANALYTICAL REPORT AND CHAIN-OF-CUSTODY FORMS

TABLE 3
GROUNDWATER SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LA

Parameter	Sample Designation Depth (feet) Date Collected Groundwater RECAP SS ¹ GW_SS	GP-1 10/07/05	GP-2 10/08/05	GP-3 10/08/05	GP-4 10/09/05	GP-5 10/07/05	GP-6 10/08/05
Metals							
Arsenic Total	0.01	ND	ND	ND	ND	ND	ND
Arsenic Dissolved		ND	ND	ND	ND	ND	0.00139
Barium Total	2.0	0.628	0.852	0.614	1.00	0.750	0.768
Barium Dissolved		0.827	0.752	0.590	0.495	0.640	0.763
Cadmium Total	0.005	ND	ND	ND	ND	ND	ND
Cadmium Dissolved		ND	ND	ND	ND	ND	ND
Chromium Total	0.1	ND	ND	ND	ND	ND	0.0101
Chromium Dissolved		ND	ND	ND	ND	ND	ND
Lead Total	0.015	0.125	0.00792	0.00847	0.00963	0.00122	ND
Lead Dissolved		0.0113	0.00689	0.0114	0.00971	0.00124	0.00569
Mercury Total	0.002	ND	ND	ND	ND	ND	ND
Mercury Dissolved		NT	NT	NT	NT	NT	NT
Selenium Total	0.05	0.0493	ND	ND	ND	ND	ND
Selenium Dissolved		ND	ND	ND	ND	ND	ND
Silver Total	0.018	ND	ND	ND	ND	ND	ND
Silver Dissolved		ND	ND	ND	ND	ND	ND
Inorganics							
Chloride	NA	579	1010	1870	371	1770	884
Cyanide	0.2	ND	ND	ND	ND	0.0547	ND
Nitrate-Nitrite (as N)	1.0	ND	ND	ND	ND	ND	ND
Nitrogen Ammonia	NA	7.26	65.0	25.4	71.5	15.4	34.3
Total Dissolved Solids	NA	2280	3350	5730	1740	4950	4080
PCBs¹	0.0005	ND	ND	ND	ND	ND	ND
Herbicides¹		ND	NT	NT	NT	ND	NT
Pesticides¹		ND	ND	ND	ND	ND	ND

All concentrations reported in milligrams per liter (mg/L).
BOLD & OUTLINED - Indicates a concentration above the RECAP Screening Standards.
ND - Analytical result below the laboratory method quantitation limit.
1 - As established by RECAP.

1 - Although indiv. parameters with this group have standards, this set of parameters does not have a group standard.

ORO - Gasoline range organics.

DRO - Diesel range organics.

ORO - Oil range organics.

GW_SS - RECAP groundwater screening standard

NT - Analyte not tested

TABLE 3
GROUNDWATER SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LA

Parameter	Sample Designation Depth (feet) Date Collected	GP-1 GP-2 GP-3 GP-4 GP-5 GP-6						
		Groundwater RECAP SS ¹ GW_SS					10/07/05 10/08/05 10/07/05 10/08/05 10/08/05	
VOCs - 8260								
Acetone	0.1	ND	ND	ND	ND	ND	ND	ND
2-Butanone(MEK)	0.18	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	0.1	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.13	ND	ND	ND	ND	ND	ND	0.117
PAH - 8270								
Acenaphthene	0.037	ND	0.00621	ND	ND	ND	0.0158	0.00015
Acenaphthylene	0.1	ND	ND	ND	ND	ND	ND	0.00062
Anthracene	0.043	ND	0.00029	ND	ND	ND	ND	ND
Benzo(a)anthracene	0.0078	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	0.0002	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	0.0048	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.0025	ND	ND	ND	ND	ND	ND	ND
Bis(2-Ethylhexyl)phthalate	0.006	ND	ND	ND	ND	ND	ND	ND
Chrysene	0.0016	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	0.0025	ND	ND	ND	ND	ND	ND	0.00046
Fluoranthene	0.15	ND	ND	ND	ND	ND	ND	0.00179
Fluorene	0.024	ND	0.0017	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.0037	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	NA	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	0.0062	ND	ND	ND	ND	ND	ND	ND
Naphthalene	0.01	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	0.18	ND	ND	ND	ND	ND	ND	ND
Pyrene	0.018	ND	ND	ND	ND	ND	ND	0.00022
Total Petroleum Hydrocarbons								
TPH GRO	0.15	ND	ND	ND	ND	ND	ND	ND
TPH-DRO	0.15	0.829	2.09	0.464	2.18	0.476	2.14	
TPH-ORO	0.15	0.20	0.404	ND	0.421	ND	0.397	

All concentrations reported in milligrams per liter (mg/L).

BOLD & OUTLINED - indicates a concentration above the RECAP Screening Standards.

ND - Analytical result below the laboratory method quantitation limit.

1 - As established by RECAP.

2 - Although indiv. parameters w/ this group have standards, this set of parameters does not have a group standard.

GRO - Gasoline range organics.

DRO - Diesel range organics.

ORO - Oil range organics.

GW_SS - RECAP groundwater screening standard

NT - Analyte not tested

TABLE 3
GROUNDWATER SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LA

Parameter	Sample Designation Depth (feet) Date Collected Groundwater RECAP SS ¹ GW_SS	GP-7 10/08/05	GP-55 (dup GP-5) 10/07/05	MW-1 10/07/05	MW-5 10/07/05	Equipment Blank 10/08/05	Trip Blank 10/07/05
Metals							
Arsenic Total	0.01	ND	ND	0.0102	ND	ND	NT
Arsenic Dissolved		ND	ND	0.0115	0.00736	NT	NT
Barium Total	2.0	0.872	0.706	0.945	0.673	ND	NT
Barium Dissolved		0.624	0.556	336	0.409	NT	NT
Cadmium Total	0.005	ND	ND	ND	ND	ND	NT
Cadmium Dissolved		ND	ND	ND	ND	NT	NT
Chromium Total	0.1	ND	ND	ND	ND	ND	NT
Chromium Dissolved		ND	ND	ND	ND	NT	NT
Lead Total	0.015	0.0268	0.00937	0.0151	0.00901	0.00984	NT
Lead Dissolved		0.0119	0.0122	0.0132	0.012	NT	NT
Mercury Total	0.002	ND	ND	ND	ND	ND	NT
Mercury Dissolved		NT	NT	NT	NT	NT	NT
Selenium Total	0.05	ND	ND	ND	ND	ND	NT
Selenium Dissolved		ND	ND	ND	0.00772	NT	NT
Silver Total	0.018	ND	ND	ND	ND	ND	NT
Silver Dissolved		ND	ND	ND	ND	NT	NT
Inorganics							
Chloride	NA	185	1860	3440	3040	ND	NT
Cyanide	0.2	ND	ND	ND	ND	ND	NT
Nitrate-Nitrite (as N)	1.0	ND	ND	ND	ND	ND	NT
Nitrogen Ammonia	NA	57.1	14.7	15.2	15.0	0.246	NT
Total Dissolved Solids	NA	1140	4520	7810	7810	38	NT
PCBs ²	0.0005	ND	ND	ND	ND	ND	NT
Herbicides ²		NT	ND	ND	NT	ND	NT
Pesticides ²		ND	ND	ND	ND	ND	NT

All concentrations reported in milligrams per liter (mg/L).
BOLD & OUTLINED - indicates a concentration above the RECAP Screening Bands
ND - Analytical result below the laboratory method quantitation limit.
1 - As established by RECAP.

2 - Although indiv. parameters w/in this group have standards, this set of parameters does not have a group standard.

ORO - Gasoline range organics.

DRO - Diesel range organics.

OW - Oil range organics.

GW_SS - RECAP groundwater screening standard

NT - Analyte not tested

TABLE 3
GROUNDWATER SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LA

Parameter	Sample Designation Depth (feet) Date Collected	GP-7					GP-55 (dup GP-5)		MW-1		MW-5		Equipment Blank		Trip Blank	
		Groundwater RECAP SS ¹ GW_SS		10/08/05	10/07/05	10/07/05	10/07/05	10/07/05	10/07/05	10/07/05	10/08/05	10/07/05	10/08/05	10/07/05	10/07/05	10/07/05
VOCs - 2260																
Acetone	0.1			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	0.19			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	0.1			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.13			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PAH - 2270																
Acenaphthene	0.037			0.00107	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Acenaphthylene	0.1			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Anthracene	0.043			0.00019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Benzo(a)anthracene	0.0076			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Benzo(a)pyrene	0.0092			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Benzo(b)fluoranthene	0.0048			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Benzo(k)fluoranthene	0.0025			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Bis(2-Ethylhexyl)phthalate	0.006			ND	ND	ND	ND	ND	ND	ND	0.0509	ND	ND	ND	ND	NT
Chrysene	0.0016			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Dibenz(a,h)anthracene	0.0025			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Fluoranthene	0.15			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Fluorene	0.024			0.00042	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Indeno(1,2,3-cd)pyrene	0.0037			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
1-Methylnaphthalene	NA			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
2-Methylnaphthalene	0.0062			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Naphthalene	0.01			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Phenanthrene	0.18			0.00027	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Pyrene	0.018			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
Total Petroleum Hydrocarbons																
TPH GRO	0.15			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT
TPH-ORO	0.15			1.91	0.444	0.350	0.378	0.378	0.378	0.378	0.378	0.378	0.378	0.378	0.378	NT
TPH-ORO	0.15			0.311	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT

All concentrations reported in milligrams per liter (mg/L).
BOLD & OUTLINED - Indicates a concentration above the RECAP Screening Standard
ND - Analytical result below the laboratory method quantification limit.

¹ - As established by RECAP.

² - Although indiv. parameters with this group have standards, this set of parameters does not have a group standard.

ORO - Gasoline range organics.

DRO - Diesel range organics.

ORO - Oil range organics.

GW_SS - RECAP groundwater screening standard

NT - Analyte not tested

TABLE 2
SUMMARY OF DIOXINFURAN CONGENER ANALYSES - SOIL SAMPLES
GENTILLY DEBRIS SITE - ORLEANS PARISH, LOUISIANA

Congener	TEF	VP-2	Converted Results*	VP-10	Converted Results*	VP-17	Converted Results*
2,3,7,8-TCDD	1	0.55	0.55	0.20	0.2	0.13	0.13
Total-TCDD	1	43.00	43	33.00	33	0.10	0.1
1,2,3,7,8-PeCDD	0.1	2.10	0.21	0.48	0.048	0.48	0.048
Total-PeCDD	0.1	44.00	4.4	32.00	3.2	0.48	0.048
1,2,3,4,7,8-HxCDD	0.1	1.90	0.19	1.70	0.17	0.48	0.048
1,2,3,6,7,8-HxCDD	0.1	4.60	0.46	2.70	0.27	0.48	0.048
1,2,3,7,8,9-HxCDD	0.1	30.00	3	2.70	0.27	0.48	0.048
Total-HxCDD	0.01	150.00	1.5	54.00	0.54	0.48	0.0048
1,2,3,4,6,7,8-HpCDD	0.1	320.00	32	34.00	3.4	0.48	0.048
Total-HpCDD	0.01	600.00	6	97.00	0.97	0.48	0.0048
OCDD	0.0001	9800.00	0.98	720.00	0.072	0.95	0.000095
2,3,7,8-TCDF	0.1	0.17	0.017	0.17	0.017	0.13	0.013
Total-TCDF	0.1	0.10	0.01	3.30	0.33	0.10	0.01
1,2,3,7,8-PeCDF	0.5	0.55	0.275	1.30	0.55	0.48	0.24
2,3,4,7,8-PeCDF	0.5	0.55	0.275	1.20	0.6	0.48	0.24
Total-PeCDF	0.05	1.20	0.06	2.50	0.125	0.48	0.024
1,2,3,4,7,8-HxCDF	0.1	0.55	0.055	1.30	0.13	0.48	0.048
1,2,3,6,7,8-HxCDF	0.1	0.55	0.055	1.10	0.11	0.48	0.048
2,3,4,6,7,8-HxCDF	0.1	0.55	0.055	1.20	0.12	0.48	0.048
1,2,3,7,8,9-HxCDF	0.1	0.55	0.055	0.49	0.049	0.48	0.048
Total-HxCDF	0.1	2.10	0.21	3.60	0.36	0.48	0.048
1,2,3,4,6,7,8-HpCDF	0.01	3.90	0.039	1.70	0.017	0.48	0.0048
1,2,3,4,7,8,9-HpCDF	0.01	0.55	0.0055	1.30	0.013	0.48	0.0048
Total-HpCDF	0.01	14.00	0.14	4.10	0.041	0.48	0.0048
OCDF	0.0001	9.60	0.00096	4.40	0.00044	0.95	0.000095
Sum Total Concentration of Weighted Dioxin/Furan Congeners =			\$2.99		44.50		1.18

TEF = Toxicity Equivalence Factor, compared with values for Total Tetrachlorodibenzo-p-dioxins [TCDD], 1,000 ng/Kg. per
Table 2. Treatment Standards for Hazardous Wastes, Title 33, Part V, Subpart 1, Louisiana Administrative Code, October, 2005.
Results reported in nanograms per kilogram (ng/Kg)
Note: Non-detectable compounds were reported at 1/2 the lower reporting limit (LRL).

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LOUISIANA

	Sample ID		SOIL _{UNI}	SOIL _{SSGW}	Collection Date										RW-4 10/9/2005
	Soil RECAP Screening Standards ¹				RND-1 10/10/2005	RND-2 10/10/2005	RND-3 10/10/2005	RND-4 10/10/2005	RND-41 (duplicate)	RW-1 10/10/2005	RW-2 10/9/2005	RW-3 10/10/2005			
Total Petroleum Hydrocarbons															
TPH - Gasoline Range Organics (C6-C10)	65	510	65		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TPH - Diesel Range Organics (C10-C28)	85	510	85		38.9	ND	13.5	23.3	26.2	ND	35.5	ND	32.8	ND	ND
TPH - Oil Range Organics (C28-C40)	180	2500	10000		78.6	ND	ND	ND	ND	ND	66.3	ND	53.1	ND	ND
Volatile Organic Compounds															
2-Butene (Methyl ethyl ketone)	500	44000	5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone (2-Propanone; Dimethyl ketone)	170	1400	1.5		0.0292	0.013	0.0343	0.0246	0.0301	0.0357	0.0333	0.0454	0.0413	ND	ND
Benzene	1.5	3.1	0.051		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	36	250	11		ND	0.00613	ND	ND	ND	ND	0.0063	ND	0.0111	ND	ND
Chloromethane (Methyl chloride)	3.5	7.3	0.01		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	160	230	19		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	590	4400	5		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	68	470	20		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds															
Anthracene	2200	48000	120		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzofluoranthene	0.62	2.8	330		ND	ND	ND	0.130	ND	ND	ND	ND	ND	ND	ND
Benzofluoranthene	0.33	0.33	23		ND	ND	ND	0.140	ND	ND	ND	ND	ND	ND	ND
Benzofluoranthene	0.62	2.8	220		ND	ND	ND	0.200	ND	ND	ND	ND	ND	ND	ND
Benzofluoranthene	6.2	29	120		ND	ND	ND	0.180	ND	ND	ND	ND	ND	ND	ND
benz(2-Ethynyl)phthalate	35	170	79		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzofluoranthene	220	220	220		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzofluoranthene	62	290	76		ND	ND	ND	0.310	ND	ND	ND	ND	ND	ND	ND
Chrysene	0.33	0.33	540		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	220	2900	1200		ND	ND	ND	0.240	0.470	ND	ND	ND	ND	ND	ND
Fluoranthene	0.62	2.8	8.2		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	2100	43000	660		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	1300	15000	11		ND	ND	ND	0.210	ND	ND	ND	ND	ND	ND	ND
Pyrene	230	5600	1100		ND	ND	ND	0.280	0.380	ND	ND	ND	ND	ND	ND

All concentrations reported in milligrams per kilogram (mg/kg).

BOLD & OUTLINED - Indicates a concentration above the RECAP Screening Standards.

ND - Analytical result below the laboratory quantitation limit.

1 - As established by RECAP.

2 - Although indiv. parameters within this group have standards, this set of parameters does not have a group standard.

SOIL_{UNI} - RECAP soil screening standard - nonindustrial direct contact

SOIL_{SSGW} - RECAP soil screening standard - industrial direct contact

SOIL_{SSGW} - RECAP soil screening standard - groundwater protection

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LOUISIANA

	Sample ID		SOIL _{UL}	SOIL _{SSGW}	RW-5 10/10/2005	RW-4 10/9/2005	SED-1 10/9/2005	SED-2 10/9/2005	SED-3 10/9/2005	SED-4 10/9/2005	SED-5 10/9/2005	VP-2 10/9/2005	VP-3 10/9/2005
	Collection Date												
	Soil RECAP Screening Standards ¹												
Total Petroleum Hydrocarbons													
TPH - Gasoline Range Organics (C6-C10)	65	510	45		ND	ND	ND	ND	ND	ND	ND	ND	ND
TPH - Diesel Range Organics (C10-C28)	65	510	45		52.3	26.8	46.6	26.8	44.1	18.2	71.3	ND	ND
TPH - Oil Range Organics (C28-C40)	180	2500	10000		57.7	56.3	53.8	53.5	153		172	ND	ND
Volatile Organic Compounds													
2-Butanone (Methyl ethyl ketone)	580	44000	5		ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone (2-Propanone, Dimethyl ketone)	170	1400	1.5		ND	0.0382	0.0087	0.0154	0.028	ND	0.0575	0.0185	0.0141
Benzene	1.5	3.1	0.051		ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	36	250	11		ND	ND	ND	ND	ND	ND	ND	0.0115	0.0115
Chloromethane (Methyl chloride)	3.5	7.3	0.01		ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	160	230	19		ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride (Dichloromethane)	590	4400	5		ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	68	470	20		ND	ND	ND	ND	ND	ND	0.146	ND	ND
Semi-volatile Organic Compounds													
Anthracene	2200	48000	120		ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	0.82	2.9	330		0.710	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)pyrene	0.33	0.33	23		0.620	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.82	2.9	220		0.590	ND	0.413	ND	ND	ND	ND	ND	ND
Benzo(a)fluoranthene	6.2	29	120		0.550	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Ethylhexyl)phthalate	35	170	79		ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Ethylhexyl)phthalate	220	220	220		0.140	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	62	290	76		0.700	ND	0.359	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	0.33	0.33	540		ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	220	2900	1300		1.400	ND	0.784	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.82	2.9	8.2		ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	2100	43000	860		0.910	ND	0.438	ND	ND	ND	ND	ND	ND
Pyrene	1300	15000	11		ND	ND	ND	ND	ND	ND	ND	ND	ND
Prone	230	5600	1100		1.300	ND	0.511	ND	ND	ND	ND	ND	ND

All concentrations reported in milligrams per kilogram (mg/kg).
BOLD & OUTLINED - Indicates a concentration above the RECAP Screening Standards.

ND - Analytical result below the laboratory quantitation limit.

1 - As established by RECAP.

2 - Although indiv. parameters within this group have standards, this set of parameters does not have a group standard.

SOIL_{UL} - RECAP soil screening standard - nonindustrial direct contact

SOIL_{UL} - RECAP soil screening standard - industrial direct contact

SOIL_{SSGW} - RECAP soil screening standard - groundwater protection

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LOUISIANA

	Sample ID Collection Date				Soil RECAP Screening Standards ¹		RW-5 10/10/2005	RW-6 10/9/2005	SED-1 10/9/2005	SED-2 10/9/2005	SED-3 10/9/2005	SED-4 10/9/2005	SED-5 10/9/2005	VP-2 10/6/2005	VP-5 10/6/2005
	SOIL/N	SOIL/J	SOIL/J	SOIL_SSGW											
Metals															
Arsenic	12	12	100		1.16	8.04	2.87	2.94	1.42	1.97	1.79	8.31	4.97		
Barium	550	14000	2000		46.6	1470	101	141	55.5	50.2	158	103	139		
Cadmium	2.9	100	20		ND	ND	ND	ND	ND	ND	ND	ND	0.257		
Chromium	12000	310000	100		11.9	16.3	6.03	10.3	4.94	5.6	6.13	13.4	11.5		
Lead	400	1400	160		13.6	21.9	91.7	17.2	7.76	6.88	8.77	14.7	13.3		
Selenium	39	1000	20		ND	ND	ND	ND	ND	ND	ND	ND	ND		
Silver	39	1000	100		ND	ND	ND	ND	ND	ND	ND	ND	ND		
Mercury	2.3	81	4		ND	ND	ND	ND	ND	ND	ND	ND	ND		
Polychlorinated Biphenyls (PCBs) ²					ND	ND	ND	ND	ND	ND	ND	ND	ND		
Herbicides ³					ND	ND	ND	ND	ND	ND	ND	ND	ND		
Pesticides															
4,4'-DDE (o,p'-DDE)	1.7	11	2		ND	ND	ND	ND	ND	ND	ND	ND	ND		
4,4'-DDT (o,p'-DDT)	1.7	12	23		ND	ND	ND	ND	ND	ND	ND	ND	ND		
alpha-BHC	0.042	0.44	0.0044		0.0014	ND	ND	ND	ND	ND	ND	ND	ND		
alpha-Chlordane	1.8	10	12		ND	ND	ND	ND	ND	ND	ND	ND	ND		
Endrin	1.8	250	2.8		ND	ND	ND	ND	ND	ND	ND	ND	ND		
gamma-Chlordane	1.8	10	12		ND	ND	ND	ND	ND	ND	ND	ND	ND		
Toxaphene	0.44	2.2	34		ND	ND	ND	ND	ND	ND	ND	ND	ND		

All concentrations reported in milligrams per kilogram (mg/kg).

BOLD & OUTLINED - Indicates a concentration above the RECAP Screening Standards.

ND - Analytical result below the laboratory quantitation limit.

¹ - As established by RECAP.

² - Although indiv. parameters w/in this group have standards,

this set of parameters does not have a group standard.

SOIL/N - RECAP soil screening standard - nonindustrial direct contact

SOIL/J - RECAP soil screening standard - industrial direct contact

SOIL_SSGW - RECAP soil screening standard - groundwater protection

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LOUISIANA

	Sample ID		Collection Date											
	SOILm	SOILg	SOILm	SOILg	VP-4	VP-10	VP-13	VP-14	VP-17	VP-19	VP-21	VP-23	VP-25	
Soil RECAP Screening Standards ¹														
	SOILm	SOILg	SOILm	SOILg	VP-4	VP-10	VP-13	VP-14	VP-17	VP-19	VP-21	VP-23	VP-25	
Total Petroleum Hydrocarbons														
TPH - Gasoline Range Organics (C6-C10)	85	510	65		ND	ND	ND	ND	ND	ND	ND	ND	ND	
TPH - Diesel Range Organics (C10-C28)	85	510	85		12.4	33.4	15.6	ND	12.3	12.2	ND	ND	23.5	
TPH - Oil Range Organics (C28-C40)	180	2500	10000		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Volatile Organic Compounds														
2-Butanone (Methyl ethyl ketone)	590	44000	5		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Acetone (2-Propanone, Dimethyl ketone)	170	1400	1.5		0.0167	ND	ND	0.0165	ND	0.04	0.0132	0.0928	0.0148	
Benzene	1.5	3.1	0.051		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon disulfide	36	250	1.1		ND	ND	ND	0.00419	ND	ND	ND	ND	ND	
Chloromethane (Methyl chloride)	3.5	7.3	0.01		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Ethylbenzene	160	230	19		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Methylcyclohexane (Dichloromethane)	390	4400	5		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	88	470	20		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Semi-volatile Organic Compounds														
Anthracene	2200	48000	120		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Benzo(a)anthracene	0.62	2.8	330		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Benzo(a)pyrene	0.13	0.33	23		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Benzo(b)fluoranthene	0.62	2.9	220		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Benzo(k)fluoranthene	6.2	29	120		ND	ND	ND	ND	ND	ND	ND	ND	ND	
benz(2-Ethylhexyl)phthalate	35	170	79		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Butylbenzylphthalate	220	220	220		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chrysene	82	290	76		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dibenz(a,h)anthracene	0.33	0.33	540		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Fluoranthene	220	2900	1200		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Indeno(1,2,3-cd)pyrene	0.62	2.9	9.2		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Phenanthrene	2100	43000	660		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Phenol	1300	15000	11		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Pyrene	230	5600	1100		ND	ND	ND	ND	ND	ND	ND	ND	ND	

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
GENTILLY LANDFILL DEBRIS SITE
ORLEANS PARISH, LOUISIANA

	Sample ID		Soil RECAP Screening Standards ¹		VP-8	VP-10	VP-13	VP-14	VP-17	VP-19	VP-21	VP-23	VP-25
	SOIL-1	SOIL-2	SOIL-3	SOIL-4	10/6/2005	10/6/2005	10/6/2005	10/6/2005	10/6/2005	10/6/2005	10/6/2005	10/6/2005	10/6/2005
Metals													
Arsenic	12	12	100		7.88	3.1	3.75	4.98	5.25	ND	6.63	1.42	5.85
Barium	550	14000	2000		108	150	151	87.8	153	112 J	133	32.4	113
Cadmium	3.9	100	20		ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	12000	310000	100		11.9	9.3	13.2	12.8	17.7	4.36	10.8	6.56	9.06
Lead	400	1400	100		12.8	9.95	14.5	14.6	18.2	8.14	14.2	6.25	13.9
Selenium	38	1000	20		ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	39	1000	100		ND	ND	ND	ND	ND	ND	ND	ND	ND
Mercury	2.3	81	4		ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls (PCBs)²													
					ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticides¹													
					ND	ND	ND	ND	ND	ND	ND	ND	ND
Particulates													
4,4'-DDE (p,p'-DDE)	1.7	11	2		ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT (p,p'-DDT)	1.7	12	23		ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	0.082	0.44	0.0064		ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	1.6	10	12		ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	18	250	2.8		ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	1.8	10	12		ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	6.44	2.2	34		ND	ND	ND	ND	ND	ND	ND	ND	ND

All concentrations reported in milligrams per kilogram (mg/kg).
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SOIL-3 - RECAP soil screening standard - groundwater protection